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# The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, DECEMBER 12, 1929 $6.00 a Year

*A battery of six 1000-Bbl. Maloneys on the I.T.I.O. Button Lease in Oklahoma City Field—Erected by Distributer, Maloney Sales Corporation.*


# Vapor-Pressure Tanks Conserve Both Oil and Gravity - - - - - -

It is unfair to both your bank account and the principle of conservation of resources—to waste good oil. Yet your oil is being needlessly wasted, and your money thrown away, in every instance where the modern vapor-pressure principle is not being applied to your lease storage.

Evaporation, when unchecked, robs the crude of its very best portion, the light fractions which both constitute volume and produce high gravity.

MALONEY Vapor Pressure Tanks retain the vapors that accumulate by reason of temperature, atmosphere and other conditions — and turn them back into oil. They do this at a cost that is negligible compared with the actual money they save.

Use these MALONEY tanks and save *ALL* of your oil and gas.

Maloney A. P. I. Bolted Steel Tanks conform to A. P. I. dimensional standards and carry the official A. P. I. monogram.

MADE OF KEYSTONE AMERICAN

*"Alone in Quality"*

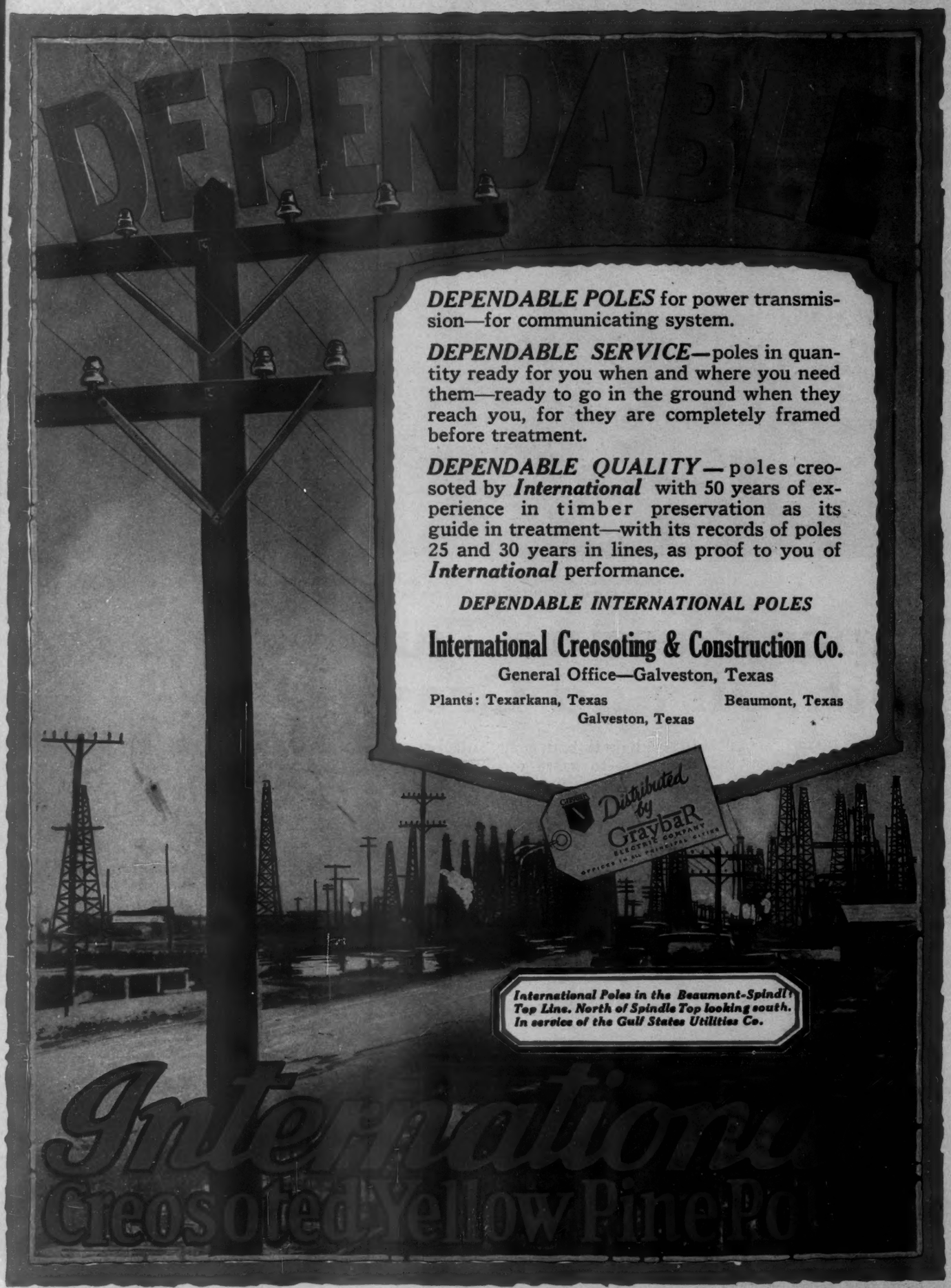
MALONEY TANK MFG. COMPANY
Tulsa, Oklahoma

*Distributers at All Principal Petroleum Points*

MALONEY

MALONEY PATENTED BOLTED COPPER-STEEL TANKS


Advertisers' Index on Page 33 Table of Contents on Page 34


DEPENDABLE
DEPENDABLE POLES for power transmission—for communicating system.
DEPENDABLE SERVICE—poles in quantity ready for you when and where you need them—ready to go in the ground when they reach you, for they are completely framed before treatment.
DEPENDABLE QUALITY—poles creosoted by International with 50 years of experience in timber preservation as its guide in treatment—with its records of poles 25 and 30 years in lines, as proof to you of International performance.
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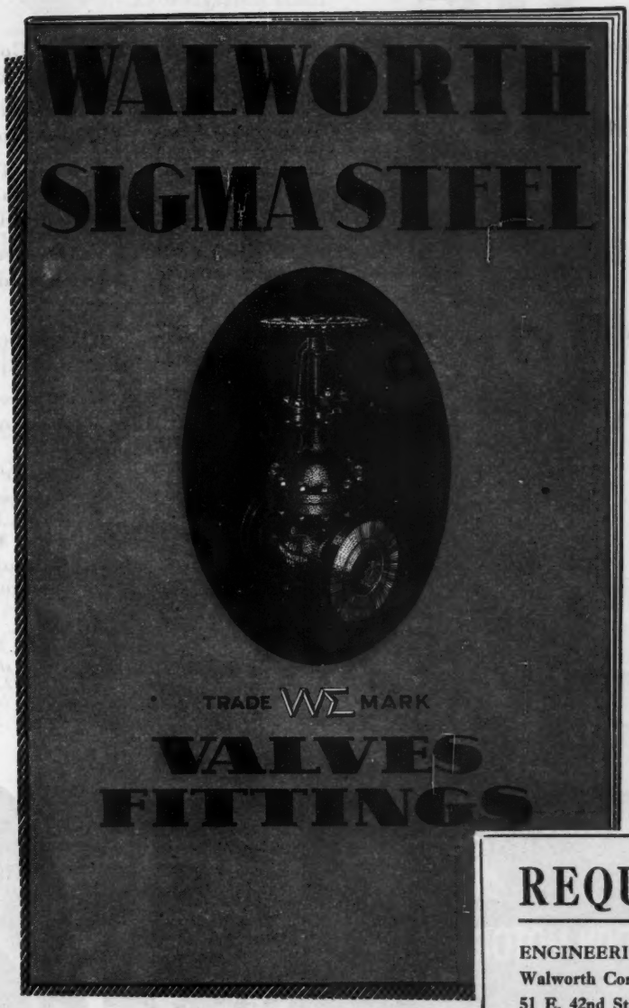
ELECTRIC COMPANY
International Poles in the Beaumont-Spindle Top Line. North of Spindle Top looking south. In service of the Gulf States Utilities Co.
International
Creosoted Yellow Pine Po

# A NEW CATALOGUE that you ought to HAVE..




All the facts about Walworth Sigma Steel valves and fittings have been assembled in this single volume. New designs are fully illustrated and complete lists of prices, dimensions and working pressures accompany the drawings.

You will find here all the data essential for the specification of all Walworth Sigma Steel valves and fittings from 150 to 1,350 pounds working steam pressure.

Get your copy now. The request blank will bring you one by return mail.

## REQUEST BLANK

ENGINEERING PRODUCTS DIVISION
Walworth Company
51 E. 42nd St., New York City

Please send me a copy of the new Walworth Sigma Steel Catalog. I am interested in Walworth Sigma Steel valves and fittings for (check the service).

☐ For steam service at_____lbs. pressure at_____° F.

☐ For hot oil at_____lbs. pressure at_____° F.

☐ For special service (describe).

Name _____

Company _____

Address _____

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*Distributors in Principal Cities of the World*
General Sales Offices: 51 E. 42nd St., New York
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WALWORTH COMPANY LIMITED
620 Cathcart St., Montreal, P. Q.


**The Oil and Gas Journal,** issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.

# Richfield Oil Company

# Sets New Speed Record

## Unloads Gas at Los Angeles Air Field at rate of 30 gallons per minute

**TRUCK TIRE USED ON RUN**

**100%**

**GOODRICH HEAVY DUTY SILVERTOWNS**

SERVICE sells gas to airport officials on the West Coast as well as pilots of planes and automobiles the country over. And service nowadays *necessitates speed!*

Speed in producing. Speed in refining. Speed in delivery. In fact, *speed* right up to the time your truck drives away leaving a satisfied buyer.

With Goodrich Heavy Duty Silvertowns you can truck both solid tire loads of construction materials out in the oil fields and maintain high speed delivery service over simmering city pavements with equal ease.

The New Goodrich Universal Heavy Duty Silvertown has:

1. An unusually strong carcass of reinforced construction.

2. Rows of "teeth" like the undershot jaw of a bulldog give *added* traction from sides of ruts.

3. Top tread areas equal to assure traction and *even* wear on smooth roads.

4. *Twin* beads fit the tire snugly to rim and help resist "side-roll" wear.

5. The tire toughened *throughout* by the famous Goodrich "water cure."

The B. F. Goodrich Rubber Company, Est. 1870, Akron, Ohio. Pacific Goodrich Rubber Co., Los Angeles, Calif. In Canada: Canadian Goodrich Company, Kitchener, Ont.

• • •

*Photo shows Richfield Oil Company's new $12,500 truck which carries a 1,150 gallon load and is equipped with an electric jimmy that unloads 30 gallons of gas per minute.*

**INSIST ON GOODRICH ON YOUR NEXT TRUCK**

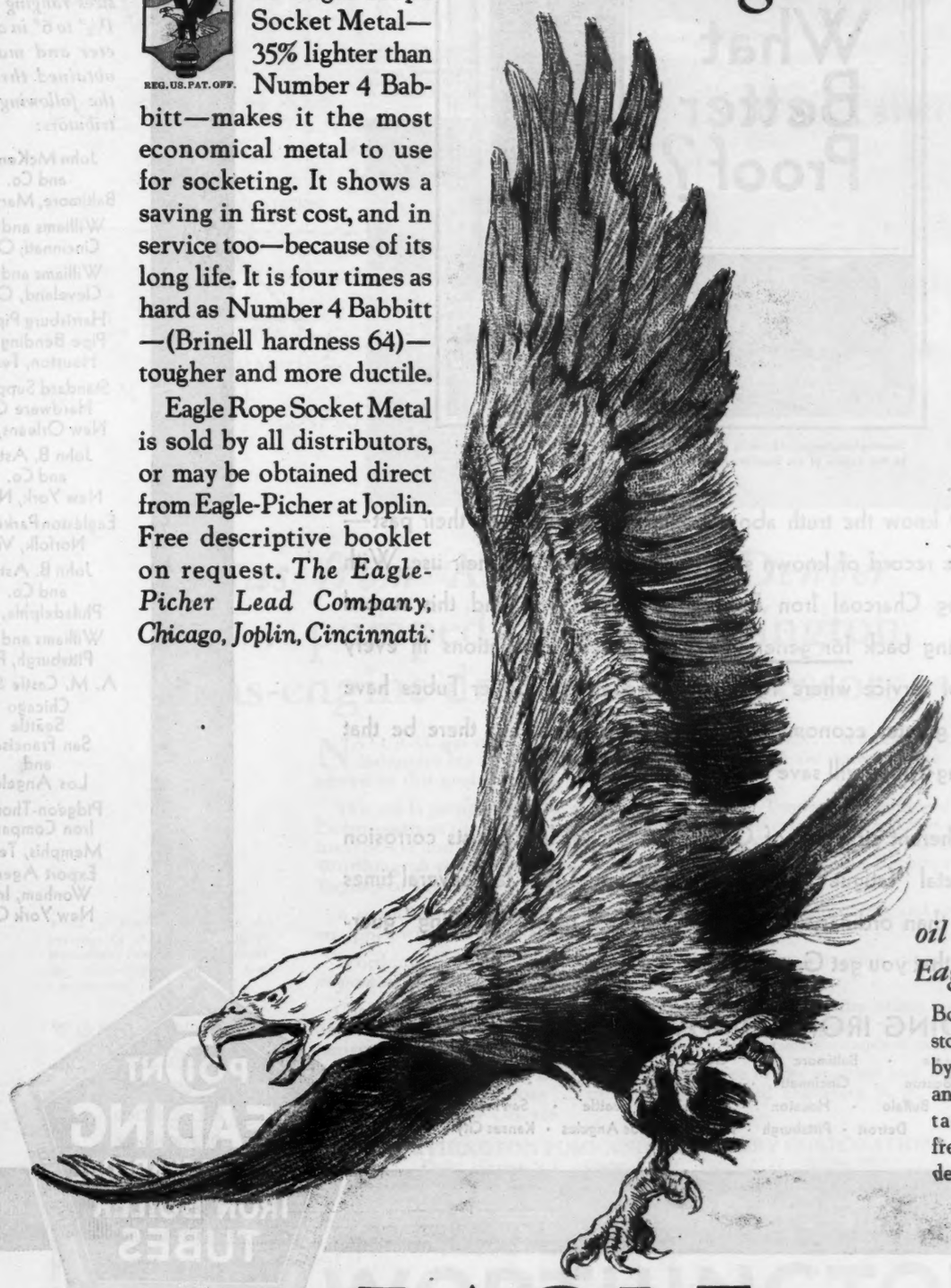
# Goodrich *Truck Tires . . .*

# *Lighter and lower-cost metal for socketing wire-rope*

REG. US. PAT. OFF.

The light weight of Eagle Rope Socket Metal—35% lighter than Number 4 Babbitt—makes it the most economical metal to use for socketing. It shows a saving in first cost, and in service too—because of its long life. It is four times as hard as Number 4 Babbitt—(Brinell hardness 64)—tougher and more ductile.

Eagle Rope Socket Metal is sold by all distributors, or may be obtained direct from Eagle-Picher at Joplin. Free descriptive booklet on request. *The Eagle-Picher Lead Company, Chicago, Joplin, Cincinnati.*

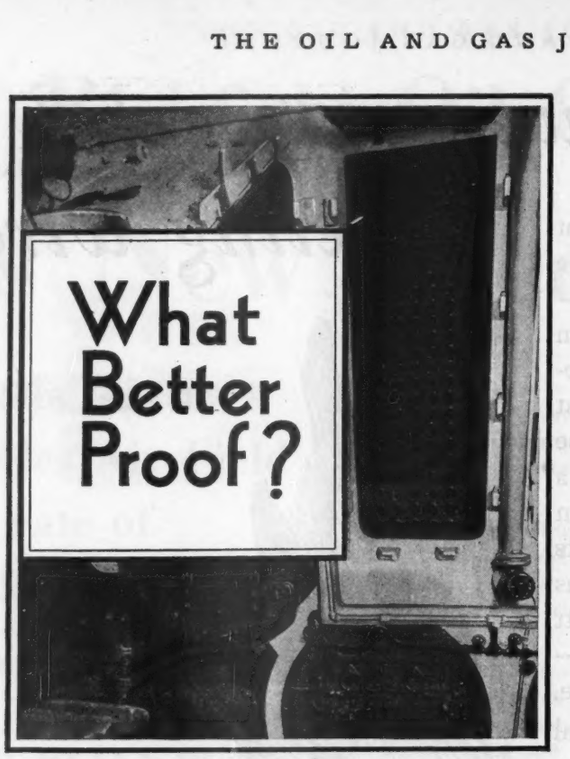


*Conserve oil resources with Eagle Lead Wool*

Bottom water is stopped effectively by Eagle Lead Wool and Cartridge Container. Send for free folder and full details.

# EAGLE
## Rope Socket Metal

Patent Pending




Showing installation of Reading Charcoal Iron Boiler Tubes (Scotch Marine Type) in the boilers of the Southern Pacific Steamship Company's *S. S. El Occidente.*

TO know the truth about boiler tubes, look into their past—the record of known savings effected through their use. With Reading Charcoal Iron Boiler Tubes, you will find this record stretching back for generations—countless installations in every class of service where Reading Charcoal Iron Boiler Tubes have meant greater economy! What better proof could there be that Reading Tubes will save money for you, too?

The inherent structure of Genuine Charcoal Iron resists corrosion and metal "fatigue". That is why Reading Tubes last several times longer than ordinary tubes. The stencilled name "Reading" guarantees that you get Genuine Charcoal Iron.

READING IRON COMPANY, Reading, Pennsylvania

Atlanta · Baltimore · Cleveland · New York · Philadelphia
Boston · Cincinnati · St. Louis · Chicago · New Orleans
Buffalo · Houston · Tulsa · Seattle · San Francisco
Detroit · Pittsburgh · Ft. Worth · Los Angeles · Kansas City

*Reading Charcoal Iron Boiler Tubes are furnished in sizes ranging from 1½" to 6" in diameter and may be obtained through the following distributors:*

John McKenzie and Co.
Baltimore, Maryland

Williams and Co.
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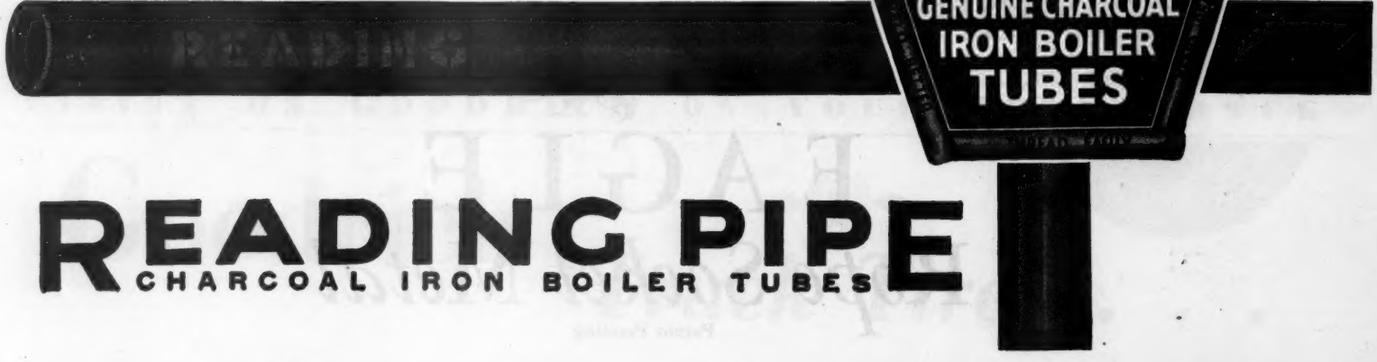
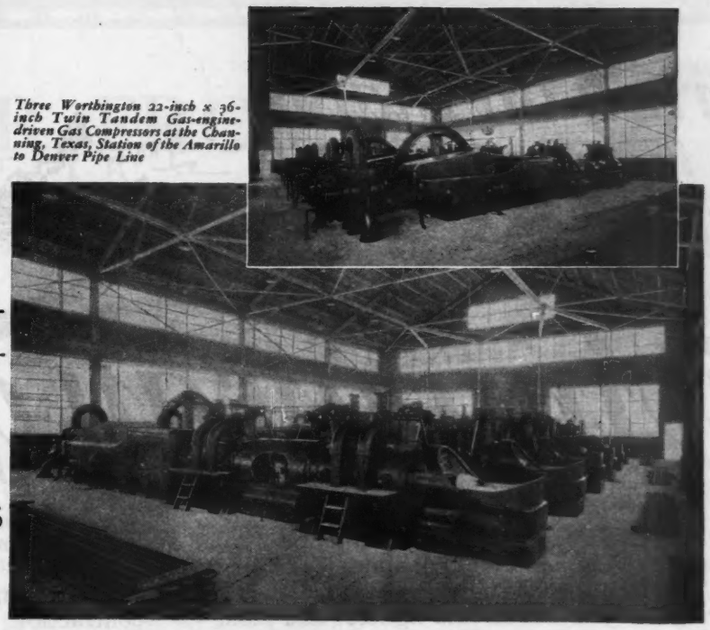



5 POINT READING GENUINE CHARCOAL IRON BOILER TUBES

READING PIPE
CHARCOAL IRON BOILER TUBES



*Three Worthington 22-inch x 36-inch Twin Tandem Gas-engine-driven Gas Compressors at the Channing, Texas, Station of the Amarillo to Denver Pipe Line*

# *Gas from Amarillo to Denver* . . . pumped by Worthington Gas-engine-driven Compressors

NATURAL gas in Denver . . . from the Amarillo Fields . . . is a reality. A new industrial era has been opened for that city and the intermediate areas served by this great pipe line.

The gas is pumped by three Worthington Twin Tandem Gas-engine-driven Compressors at the Channing, Texas, Station. Each of these units develops 1,000 horsepower and has a capacity of 33,000,000 cubic feet per 24 hours. Additional Worthington equipment in this station consists of three Single Recompressor Engines of 170 horsepower each.

A second station, at Model, Colorado, is now under construction, and will be equipped with three similar main units of 37,000,000 cubic feet per 24 hours each.

Worthington equipment was chosen for this line squarely upon its *record of performance* on other important lines.

Construction and operating engineers have found that, as the oldest builder of gas engines in the United States, Worthington draws upon a wealth of experience which makes reliable operation and low-cost maintenance a certainty.

*Moreover,* Worthington offers a complete service in the erection and installation of compressor stations . . . through its associated engineers, A. M. Lockett and Company, New Orleans.

*Write for Bulletin S-550-B1, describing in detail Worthington Horizontal Four-cycle Double-acting Gas-engine-driven Gas Compressors*

WORTHINGTON

PUMPS
COMPRESSORS
CONDENSERS *and* Auxiliaries
DIESEL ENGINES
GAS ENGINES
FEEDWATER HEATERS
WATER, OIL *and* GASOLINE METERS

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WORTHINGTON

# *Storing oil that is free to evaporate is like*

# *Giving away gasoline*

Stockholders would be up in arms in a minute if oil companies started giving away gasoline. Yet every ordinary "gas-tight" cone roofed tank is doing just that—giving away to the air the lightest and most valuable fractions of your oil; losses that in a year are enormous.

For example, a 55,000 bbl. cone roofed tank storing average Mid-Continent crude will lose over 500 bbls. a year. This evaporation may also lower the gravity of the remaining oil enough to drop it into a lower price group.

These losses can be practically eliminated on standing storage tanks with Wiggins Breather Roofs, which flex up and down with thermal expansion and contraction. Fire hazard and corrosion from sour crude are also reduced. Wiggins Floating Roofs accomplish similar results with working tanks. Both roofs pay for their added cost in a short time.

Why not investigate the savings possible with Wiggins Roofs without obligation to yourself? Our nearest office will gladly send you full information and refer you to nearby users.

Wiggins Breather Roof on 55,000-Barrel Tank

## CHICAGO BRIDGE & IRON WORKS

| | |
|---|---|
| Dallas | 3341 Magnolia Bldg. |
| New York | 3147 Hudson Terminal |
| Cleveland | 2204 Union Trust Bldg. |
| Chicago | 2128 Old Colony Bldg. |
| Detroit | 1514 Lafayette Bldg. |
| Philadelphia | 1615 Jefferson Bldg. |
| Boston | 1517 Consolidated Gas Bldg. |
| San Francisco | 1054 Rialto Bldg. |
| Havana, Cuba | Apartado 2507 |

# STOP EVAPORATION LOSSES

## *with* WIGGINS BREATHER ROOFS

O&GJ 12-12 Gray

NYE TOOLS FOR SALE BY ALL LEADING SUPPLY HOUSES

# A LETTER FROM HARRY G. NYE

TO THE OIL MEN OF THE U. S. A.

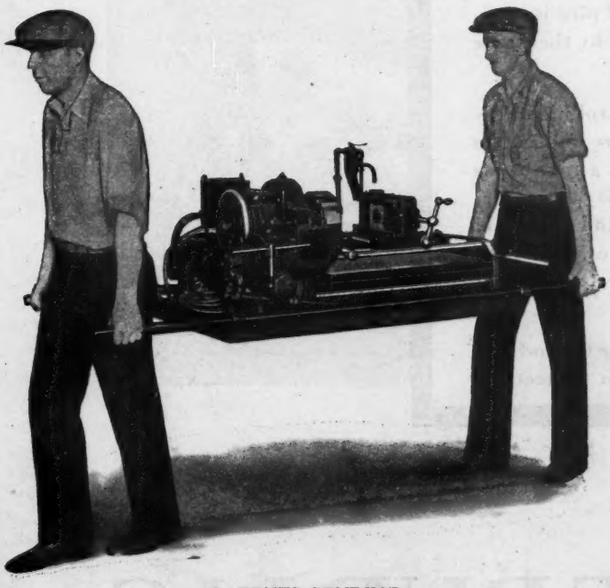
## "WHAT TO BUY THE WIFE FOR CHRISTMAS"

FELLOW CITIZENS:

It's a funny thing, but I have seen great, big, broad-shouldered, arrow-collar, hart-schaffner-and-marx men go through fire, flood, famine, falling markets and prohibition without batting an eye, and yet I have seen those same strong men break down and cry when they had to pick out a Christmas present for the wife.

Does a woman act that way when she has to pick out ours? I should say not. She has the system, and it is because we haven't the system that we are such a bunch of saps. When she goes down to do her Christmas shopping she knows just where to go and just what she wants.

And then what happens? Christmas comes, and she leads you into the front room and shows you your present, or presents. And what is it, or them? Why, bless her thoughtful heart, it is a hand-painted bridge-lamp, a satin-lined sewing-basket, a seven-dollar vase, or something else to delight the masculine soul.



Well, all you great, big, broad-shouldered weaklings, gather around. I've got an idea, and if you will come closer, I will communicate to you the secret work of the newly-organized (here and now) Amalgamated Order of Long-suffering Husbands, who don't want any pottery, but would appreciate a pipe, or something equally useful.

*This* Christmas why not delight her heart with a Nye Portable Threading Machine or some Nye Dies?

Of course you can't charge them to her and tell us to send her the bill. But anyway she will get a lot of things you want, and that is the system. For once, as far as you are concerned, it will be a real Christmas, and not just December 25. And be sure you give her *Nye* tools, because you deserve the best. Prompt delivery guaranteed.

Yours for service,

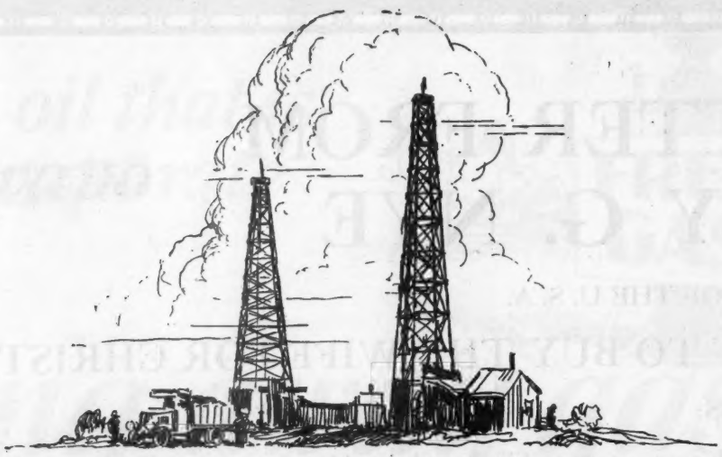
HARRY G. NYE
Otherwise Known As
The Nye Tool & Machine Works
4120-30 Fullerton Avenue Chicago, Ill.

PATENTS PENDING

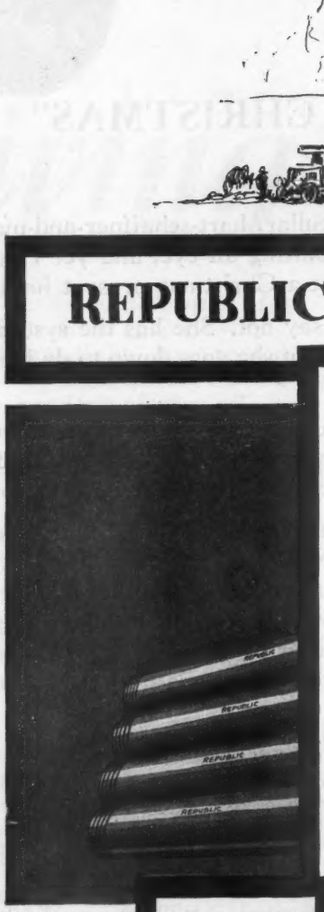
"THE LIGHTWEIGHT CHAMPION"
THREADS, CUTS OFF AND REAMS
CAPACITY ½ TO 2 INCHES

Copyright, 1929, by Harry G. Nye All rights reserved

NYE TOOLS FOR SALE BY ALL LEADING SUPPLY HOUSES



# REPUBLIC PIPE IS PROTECTION!

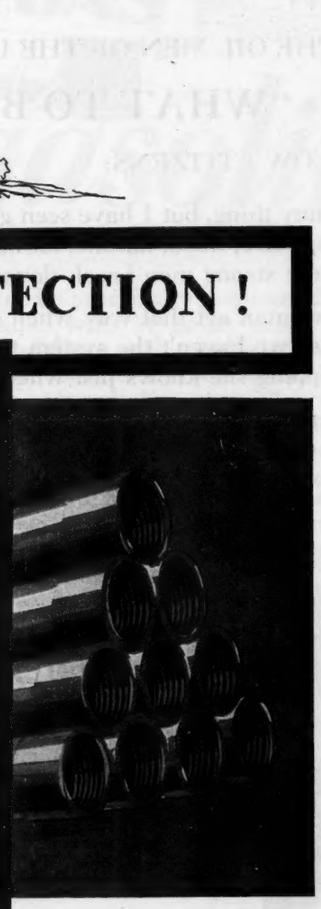



WHEREVER Republic Steel Pipe is used, and for whatever purpose, there is a surety of safe, trouble-free, lasting service.

Because good steel pipe is identified and guarded by the name "Republic."

Owning and controlling every operation, from ore mining to completed pipe, guarantees strength, uniformity, most desirable physical and chemical properties and every other quality necessary to the best modern steel pipe.

Republic Pipe in the Oil and Gas fields is production protection.



Tubing
Casing
Line and
Rotary
Drill Pipe

*Branch Offices*

Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, El Paso, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Seattle, St. Louis

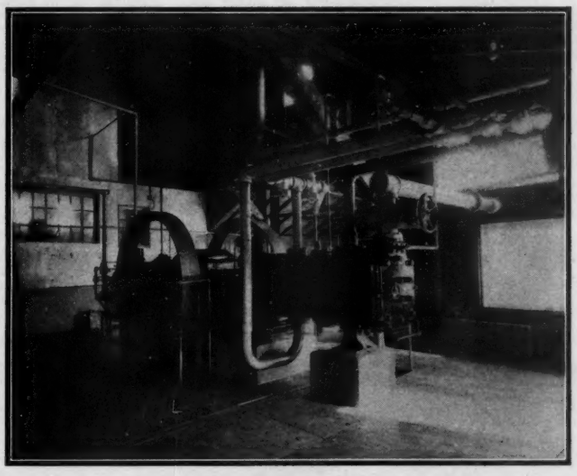
# REPUBLIC
IRON & STEEL CO. YOUNGSTOWN O.
# PIPE & CASING

# Standardization on BARCO pays

The illustration below shows some of the Barco Lubricated Plug Valves used by a large oil company that has standardized on them. Barcos are on duty in the accumulator house, refinery and field—in sizes from ½-in. up, in services from hot gas lines at 200 lbs. pressure to compressor lines with 18 inches of vacuum.

Standardization on Barco Valves pays because they give long, non-sticking and non-leaking service. Maintenance is limited to an occasional turn of the lubricating screw. They can be adjusted to any degree of ease of operation, since the lubricant is not used to force the plug from its seat. The gland can be repacked when the line is under pressure, without danger of the plug blowing out.

*Above is sectional view of LCI Barco Lubricated Valve.*



Barco Valves work equally well on gas, oil, water and air lines. Special materials supplied for special services, such as handling acids. Our catalog gives complete valve and lubricant data; sent free on request.

**Barco Manufacturing Company**
**1801 Winnemac Avenue, Chicago, Illinois**

**Agents:**
**Vinson-Canter Co., Tulsa, Oklahoma**
**M. N. Dannenbaum Co., Houston, Texas**
**The Steam Supply & Rubber Co., Seattle, Washington**
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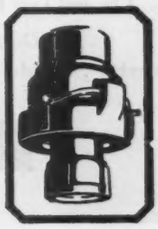
**Herbert Wolcott, El Paso, Texas**
**Petroleum Equipment Co., Los Angeles, Calif.**

BARCO



Valves and Joints

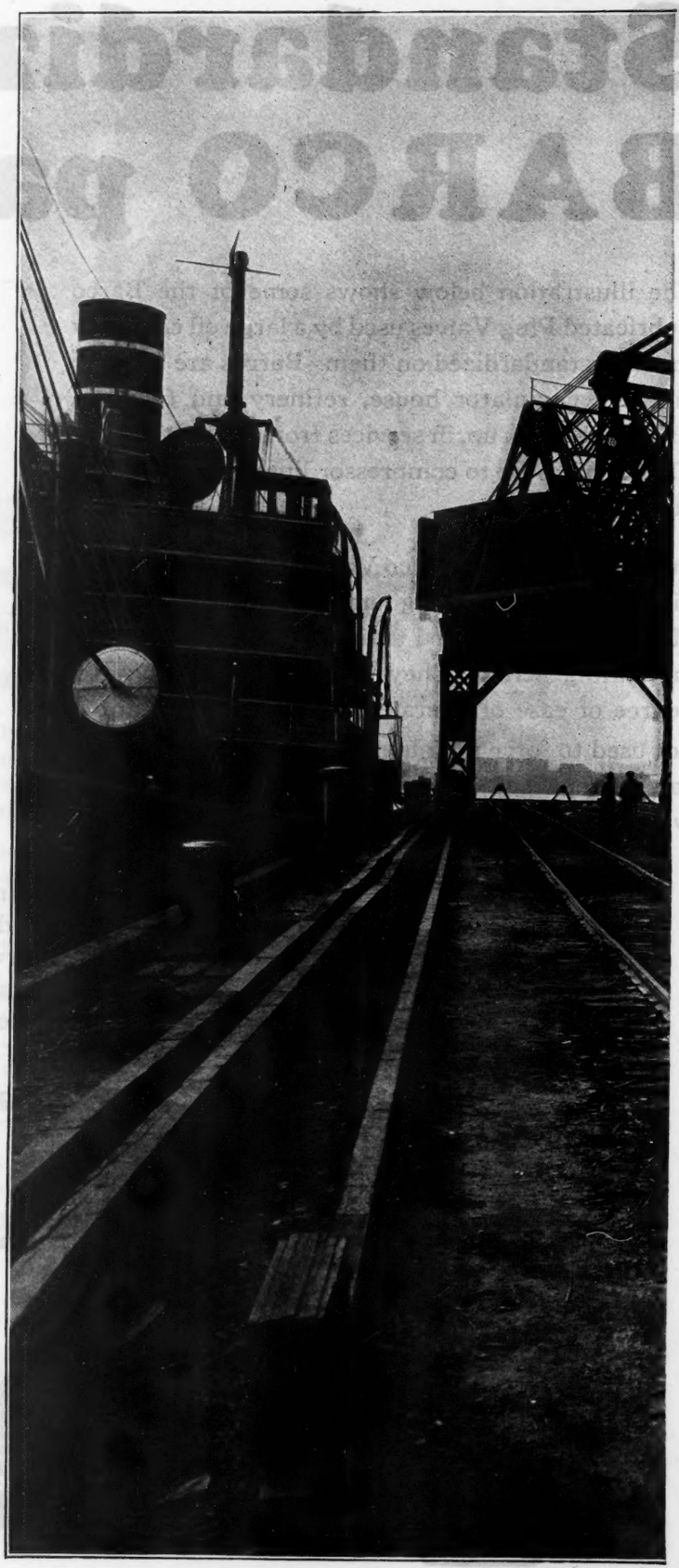
O&GJ 11-16 Gray

# IN AN EVER INCREASING TIDE AT TIDEWATER

AN ever increasing number of SMITHWelded Vessels are being shipped from America's shores.

The recognition of Smith Engineering for Safety in Oil Cracking is world wide.

Vessels have been rolled off boats in Roumania, on to ramps made of telephone poles, unloaded directly into the sea at Trinidad, floated up the rivers of Borneo, and erected all over the world.



A. O. SMITH CORPORATION

*General Offices: Milwaukee, Wisconsin*

Oil and Gas Field Products Division

*District Offices at:*

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# SMITHWELDED

# CRACKING STILLS

# Buffalo Oil Well Pumping

# POWER
# WORM DRIVEN

**SPECIFICATIONS**

Eccentrics—16-in. or 20-in. stroke as required.

Drive—worm, 8-in. diameter, heat treated alloy steel; worm gear, 31-in. diameter, special alloy gear bronze.

Clutch—BUFFALO built, contracting band type.

Lubrication—force feed throughout.

Bearings—Timken tapered roller bearings.

Engine—BUFFALO Type DE, 4 cylinder, 6¼-in. bore, 9-in. stroke.

Fuel—gas or gasoline as desired.

Weight—8,970 lbs. complete.

*Our engineers are at your service to help solve your oil well pumping problems. Complete catalog describing the unit and blueprints showing suitable house and foundation will gladly be sent on request.*

DEPENDABILITY

Driven by the well-known BUFFALO Type DE engine through contracting band clutch and worm gears and mounted on Timken tapered roller bearings.

COMPACTNESS

A complete unit within itself. Requires a minimum of housing space and foundation—a house 16 by 20 feet is ideal. Compare this with the space required by any unit on the market.

ECONOMY

The proven dependability of the installation; elimination of replacement, time and power losses such as are found in use of the band wheel type of power; low installation cost:—all these factors combine to make the BUFFALO Oil Well Pumping Power by far the most economical obtainable.

ENGINE OF CONSTANT SERVICE
POWERED BY Buffalo

**BUFFALO GASOLENE MOTOR CO.**

**1282-1292 Niagara St. · · · Buffalo, N. Y.**

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C. A. Swartz

# Public Utility Company Speeds Up Service With CP Portable Compressors

A "TROUBLE REPORT" means ACTION! Out from the nearest service station speeds one of these modern units — a CP Portable Compressor, gasoline engine driven, truck mounted and carrying time-and-labor saving CP pneumatic tools for breaking pavement, drilling rock, digging clay, tamping backfill, etc. A large fleet of similar outfits is used for construction work.

The tremendous growth of this utility company is due in no small measure to its excellent service—and to maintain its high service ideals it naturally insists upon and purchases equipment of the finest type.

CP Portable Compressors are made in five sizes—110, 160, 220, 265 and 310 cu. ft. free air per minute—and suitable mountings for every requirement. May we send you a copy of Bulletin No. 797?

## CHICAGO PNEUMATIC TOOL COMPANY

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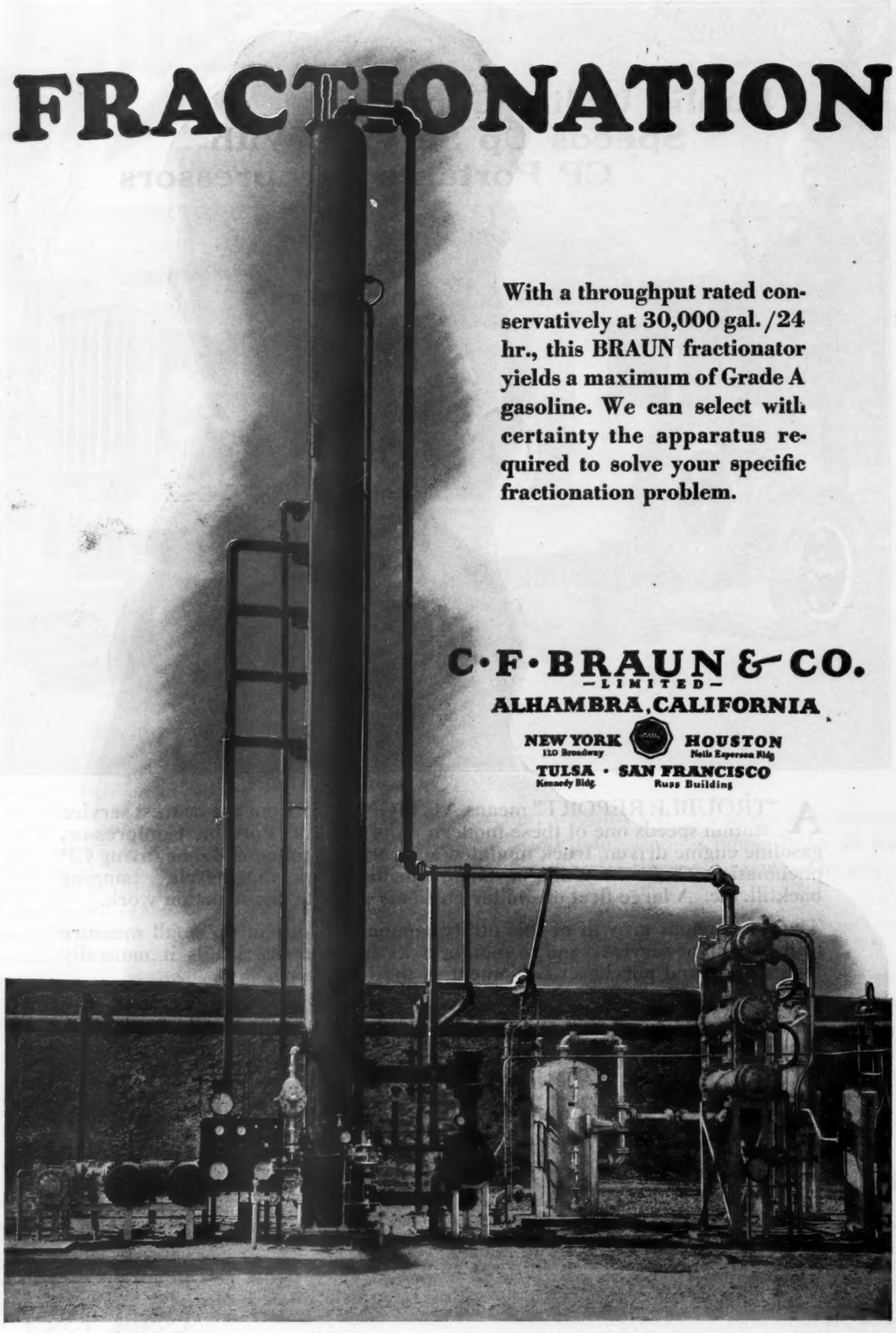
CANADA: Canadian Pneumatic Tool Co., Ltd., 757-59 St. Antoine St., Montreal

# FRACTIONATION



With a throughput rated conservatively at 30,000 gal./24 hr., this BRAUN fractionator yields a maximum of Grade A gasoline. We can select with certainty the apparatus required to solve your specific fractionation problem.

C·F·BRAUN & CO.
—LIMITED—
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LUCEY
The
BACKGROUND
OF SUCCESSFUL
DRILLING MACHINERY
IS
STANDARDIZATION
LUCEY Rotary Drilling
Equipment Conforms
Rigidly to Specifications
as Adopted by
AMERICAN
PETROLEUM
INSTITUTE
LUCEY PRODUCTS CORPORATION

# Dow Caustic Soda

THE cleanliness, uniformity, and high quality of Dow Caustic Soda makes its use particularly advantageous in the refining of petroleum, mineral oils, vegetable oils and fats. Manufactured in solid, flake and liquid forms, it meets the most exacting requirements. Solid form is shipped in airtight steel drums containing 700 lbs. net. Flake form is packed in 100 lb. and 320 lb. net weight air-tight steel drums. Liquid is shipped in tank cars of 7000 gallon capacity. Many prefer the flake form for its ease of handling. Try Dow Caustic Soda. You will find Dow a reliable source of supply regardless of your requirements.

**Dow Calcium Chloride**
***73-75% Solid, 77-80% Flake***

Dow Calcium Chloride is used widely as a refrigeration agent. Its general high quality, freedom from magnesium and other objectionable impurities, is insurance against trouble from excessive corrosion. Refiners can use it as an efficient refrigeration medium in their wax and heavy grease plants. Prompt deliveries made from warehouse stocks carried in principal cities.

**Dow Carbon Tetrachloride *99.9%***

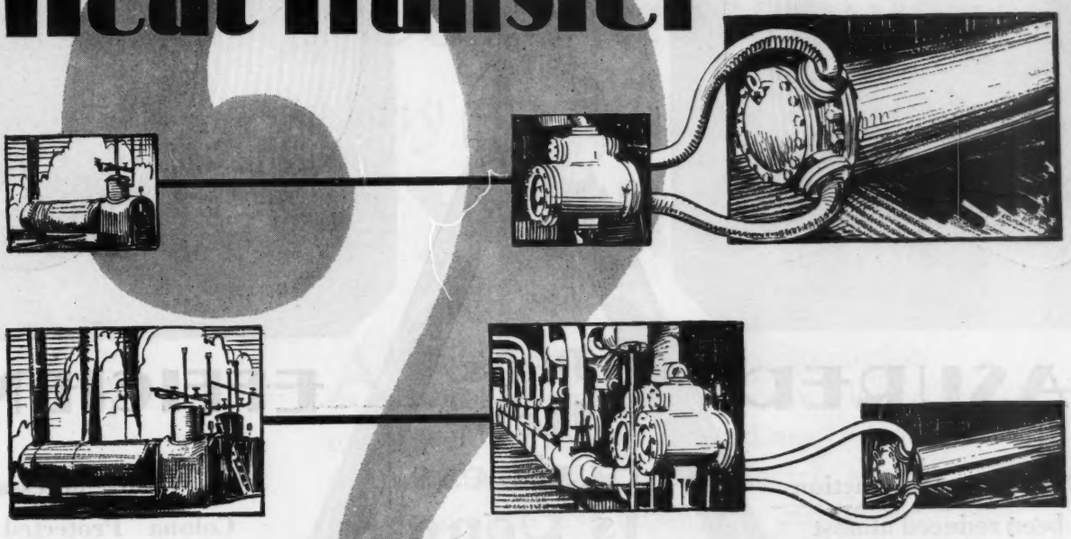
This Dow solvent, cleaner and degreasing agent, when mixed in proper proportions with inflammable solvents such as Naptha renders them non-inflammable. Does not separate on fractional distillation, but may be redistilled and used over and over. An efficient dry cleaning agent. Cleans most delicate fabrics without injury and evaporates without residue odor.

***Let us quote on your requirements of the above products***

DOW

**THE DOW CHEMICAL COMPANY**
**MIDLAND, MICHIGAN**
***Branch Sales Offices:***
**90 West Street, New York City — Second & Madison Streets, Saint Louis**

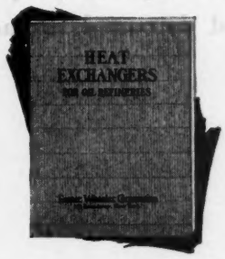
# What Price Heat Transfer



IN HEAT exchangers the transfer of heat varies almost directly with the oil velocity. The required heating surface for a given exchanger problem, therefore, is a function of the velocity of the oil. The actual cost of obtaining this velocity in pumping the oil through an exchanger varies with the efficiency of the steam generating and pumping equipment.

In designing heat exchangers for a given heat recovery, it is therefore essential to determine a proper economic balance between first cost of exchangers and first cost combined with operating charges of the pumping equipment.

The Foster Wheeler Corporation is particularly well fitted to solve this problem correctly for every refinery. Years of experience in the designing and building of heat exchangers and in the manufacture of complete distillation units provides a wide knowledge of the requirements.




*The new Heat Exchanger Catalog is now ready for distribution. Copies sent upon request.*

FOSTER WHEELER CORPORATION
165 Broadway, New York, N. Y.
*Branches in Principal Oil Centers*

*Foreign Associates:*
Foster Wheeler Limited; London, England.
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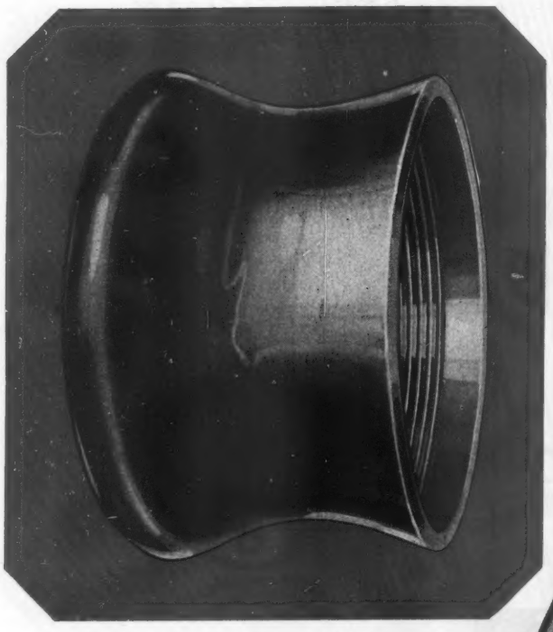
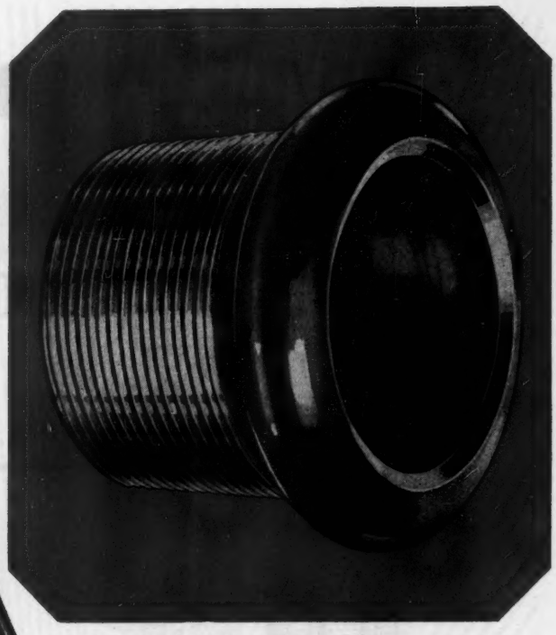
Foster Wheeler Limited; Toronto-Montreal-Vancouver, Canada.

# FOSTER WHEELER





# MEASURED EFFICIENCY

That's How Business Is Done Today

Drilling and pipe line construction of today has been reduced almost to a scientific basis of definite costs and predetermined time. Every detail is planned in advance and time is recognized as an element of prime value.

How vitally necessary then, is Colona Protected Pipe and Couplings. These patented pipe thread protectors eliminate all the delays attendant to unprotected pipe and damaged threads.

You can avoid unforseen delays by insisting on Colona Protected Pipe from your dealer.

COLONA DIVISION
PITTSBURGH SCREW & BOLT CORP.
Pittsburgh, Pa.

# ¢OLONA

# PIPE THREAD PROTECTORS

# ...and again
# Drilling Costs are Lowered
## by Another
# STOODY PRODUCT

AN almost unbelievably hard cutting edge, furnished in welding rod form. Flowed on in welding rod style! And *one layer is sufficient!* Applied by either electric arc or acetylene torch. No mixing, no carbon arc, no complicated methods, *just results ... and how!*

Sounds impossible? Surely! *It was* until BOROD was finally tested and proved. BOROD provides a tungsten-carbide surface simply, quickly and cheaply. It *makes hole* in any formation, holds reaming edges to gauge, and presents no difficulties of application. A card or letter will bring detailed information.

BOROD

*BOROD is the result of intensive research by the same group which perfected those world-famous products*
STOODY ROD, STOODITE
*and* BORIUM

## STOODY COMPANY

*Manufacturers of* WELDING ROD • ALLOY STEEL • EQUIPMENT

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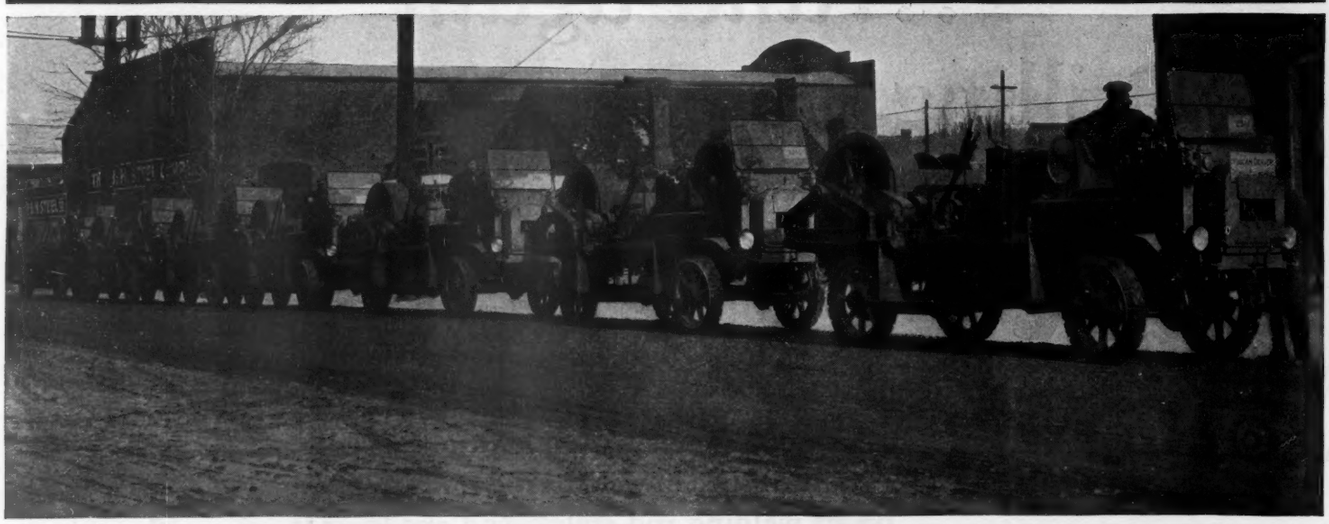
*District Offices*
Tulsa, Oklahoma New York City

*Mid-Continent Distributors*
WELDERS SUPPLY COMPANY
Dallas Tulsa Houston

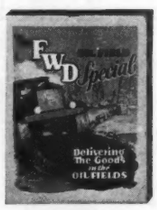
DISTRIBUTORS LOCATED IN PRINCIPAL INDUSTRIAL DISTRICTS OF THE WORLD

# FLEETS of FWD trucks



# do "ALL PURPOSE" oil Service!

FWD Trucks drive and brake on all four wheels. They are made in sizes from 2 to 10 tons . . . four wheels . . . six wheels and truck tractor.




THE fact that many oil operators use FWD Trucks in large fleets proves conclusively that they *must be economical to operate*—that they are able to *negotiate sandy, slushy, loose ground conditions* — that they have the *ability to stand up to this trying service.*

FWD Trucks are unusually well qualified for this service since they are built around the famous *Four Wheel Drive Principle.* This means that the load and power is distributed on all four wheels. It means that the power is transmitted to the spots where it is needed . . . it means better traction and hauling capacity . . . Let our oil field representative give you specific information on how the FWD can most economically serve you . . . Write for special oil field bulletin today.

**The Four Wheel Drive Auto Co.**
**Clintonville, Wisconsin**

*Canadian Factory*
Kitchener, Ontario

FWD

BACKED BY NATION WIDE SERVICE

# Before you buy an Orifice Meter . . . .

## *Ask yourself these questions:*

1. Will the meter be easy for my field men to clean?
2. Is it easy to zero?
3. Has the Instrument a uniform scale chart?
4. Does the pen travel uniformly over the entire chart range?
5. Has the meter a machined steel float that is powerful enough to defy dirt and that will not clog easily?
6. Can my field men assemble this orifice meter quickly?
7. Can it be easily read?
8. Are the parts interchangeable?
9. After installation, how about the maintenance cost? Will it be low?
10. Is the meter ACCURATE—without inherent error—requiring no field calibration?

If you buy a Foxboro Orifice Meter, the answers to these ten questions are "yes."

## *Foxboro meets every requirement*

Foxboro Orifice Meters meet every requirement of an orifice meter that is to do its job efficiently. In fact, leading oil and gas engineers specified what they wanted—and Foxboro built the instrument.

For nineteen years the charts of Foxboro Orifice Meters have been accepted as the accurate records of wet or dry gas flow.

The Foxboro Orifice Meter is made in three standard differential ranges of 20, 50, and 100 inches of water. A Foxboro Engineer will be glad to tell you just which type is best suited to your needs. Write this engineer at the nearest Branch Office.

The Foxboro Guarantee, sealed to each Recording and Controlling Instrument. This guarantee assures you of years of accurate, dependable service.

**THE FOXBORO COMPANY**

Neponset Avenue, Foxboro, Mass., U. S. A.

28 North Guthrie Ave., Tulsa, Okla. Magnolia Bldg., Dallas, Texas. J. E. Treacy, Strada Golesti No. 9, Ploesti, Roumania

NEW YORK CHICAGO BOSTON PHILADELPHIA PITTSBURGH CLEVELAND ROCHESTER, N. Y. ATLANTA LOS ANGELES SAN FRANCISCO SALT LAKE CITY PORTLAND, ORE. DETROIT

*Agents for Robinson Patented Orifice Flange Fittings.*

**FOXBORO**

REG. U. S. PAT. OFF.

***THE COMPASS OF INDUSTRY***

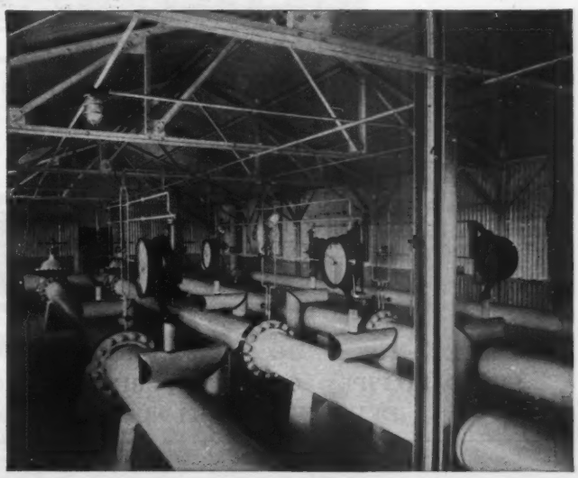
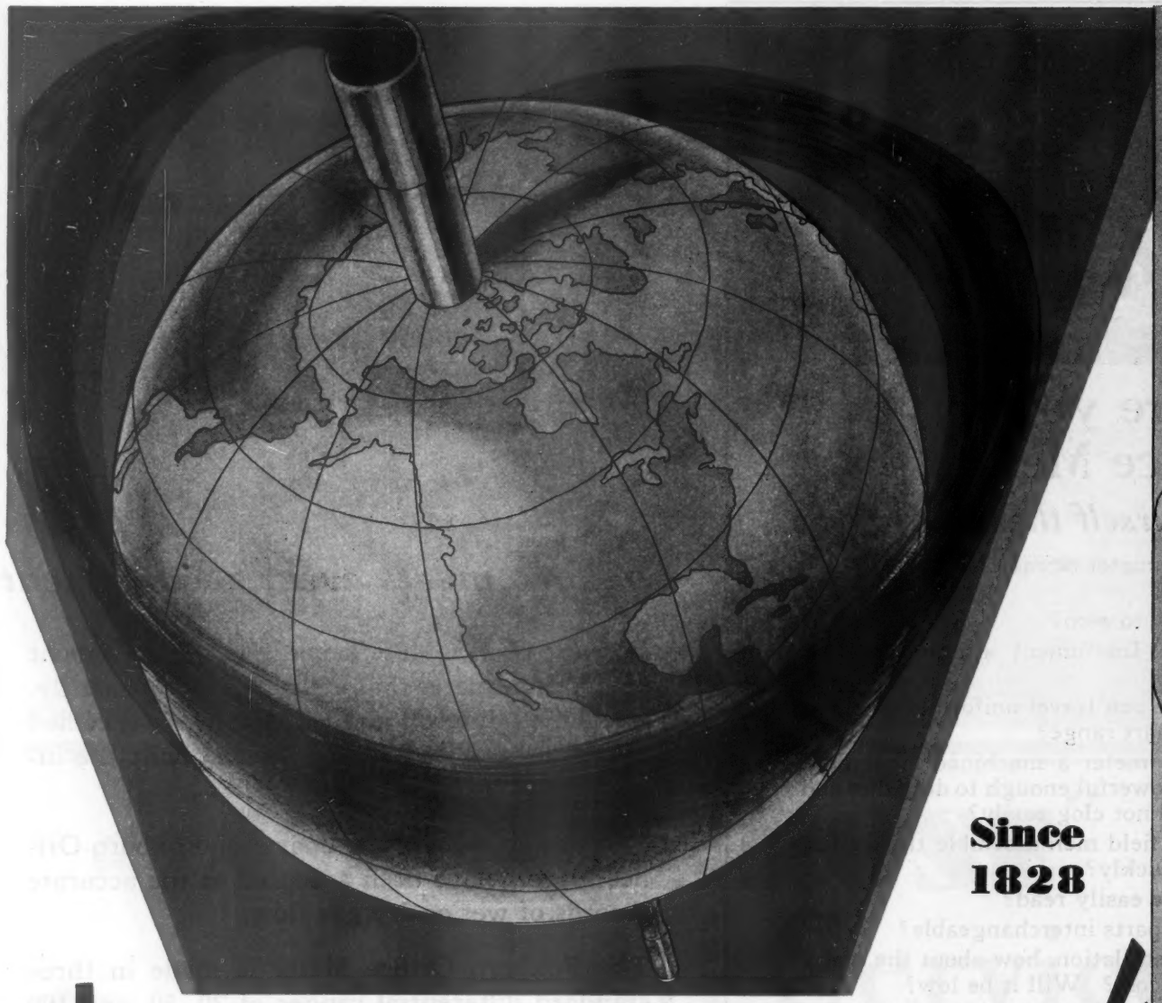


*Photo above shows Foxboro Orifice Meters measuring gas at the North Station of the Oklahoma Natural Gas Company, Oklahoma City, Oklahoma.*

Instruments for Controlling, Recording, and Indicating Temperature, Flow, Humidity and Pressure



Since 1828

# The Oil World Accepts/

STANDARD SEAMLESS

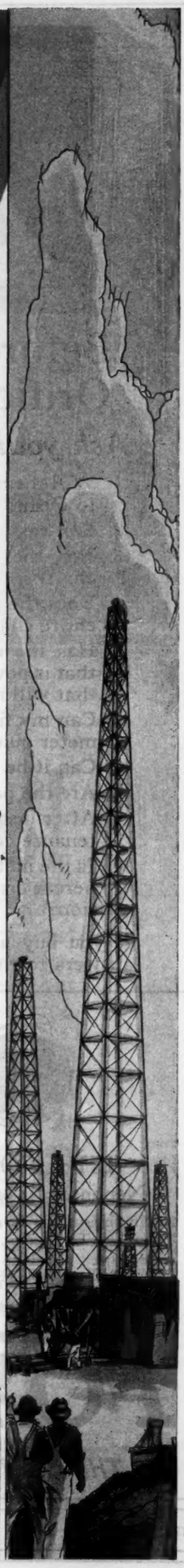
CASING TUBING DRILL PIPE *(Regular and Heat Treated)* LINE PIPE STILL TUBES

*Sizes 2 inch to 13⅜ inch O. D.*

SPANG WELDED

STANDARD PIPE CASING TUBING LARGE O. D. PIPE LINE PIPE

DRIVE PIPE DRILL PIPE *Sizes ⅛ inch to 24 inch O. D.*



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*Sales Offices:* CHICAGO, ILL. NEW YORK, N. Y. ST. LOUIS, MO. PITTSBURGH, PA. TULSA, OKLA. LOS ANGELES, CAL.

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Franklin Valveless Oil and Gas Engines

## Some of the Franklin OF Good Points

- Enclosed type
- Low fuel consumption
- 100% interchangeability
- Simplicity
- Piston rod is fitted with metallic packing which never needs adjusting or replacing
- Every spring exposed
- Complete simplicity with practically no adjustment
- In case of belt breakage engine automatically stops
- Fuel pump driven by eccentric running in oil bath
- Bearings are removable and reversible
- Only standard threads used. No special wrenches required
- Cylinder has 3 point force feed lubrication
- Balance of lubrication is splash feed
- Pistons are air cooled
- All nuts subject to vibration are castellated and fastened with cotter pins.
- Most economical to operate in fuel, lubricant, water and repairs
- Easy to start

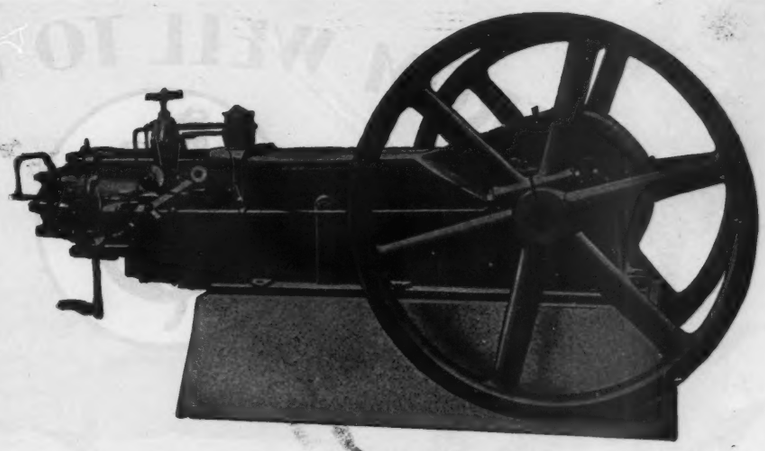
### Type BG Clutch for Cable Tool Drilling or Pumping

A vast improvement over the former type of clutches.

Driven from pulley on engine. Permits the use of a larger diameter pulley and makes possible a slower clutch speed. Operates by hand lever on derrick.

Construction and design prevent Reverse Clutch Troubles.

PRICE—$1200.00 F.O.B. Franklin, Penna.



# New FRANKLIN OF Driller
# The Engine With the Pedigree

Back of the new Type OF Franklin Valveless Engine are years of development work—and engines which in their time stood unsurpassed.

But—new times—new conditions. So here is the Type OF—an engine in its proper size, capable of going as deep into the ground as you need to go—at a smooth, swift pace and economically.

Whether your wells are located in proven fields or in isolated sections, you cannot beat the Franklin records of low operating costs — in fuel, lubricating oil or water. Both drilling and pumping sizes mount on the same block with corresponding bolt holes. Portable, light, powerful and easily serviced. What more could you ask?

*Send for literature.*

**Franklin Valveless Engine Company**
Franklin, Penna.

### PRICES

40 H.P. Type OF Franklin, including water circulating pump and pulley. *$1550 F.O.B. Franklin*

50 H.P. Type OF Franklin, including water circulating pump and pulley. *$2050 F.O.B. Franklin*

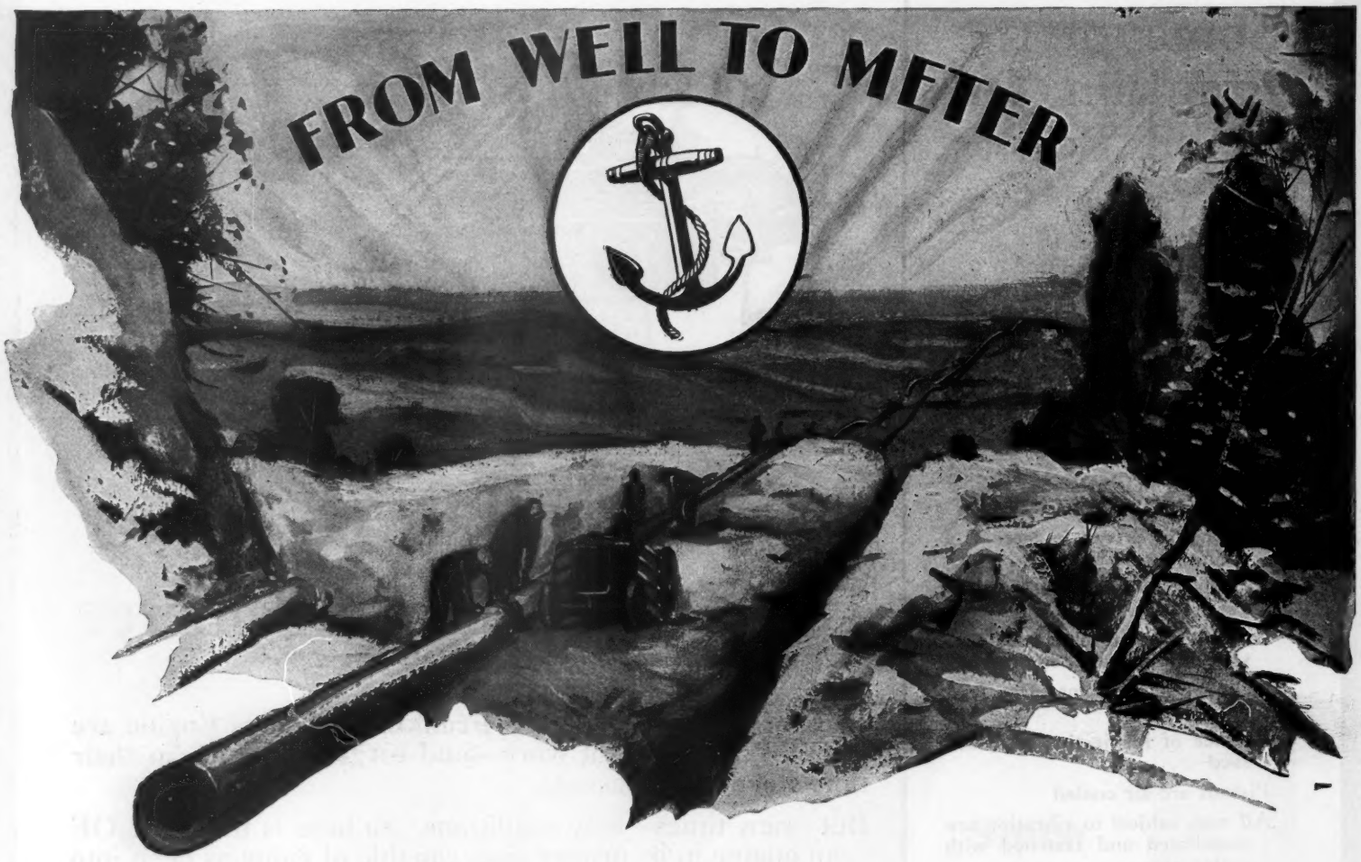
80 H.P. Type OF Franklin, including water circulating pump, pulley and air starting equipment. *$3200 F.O.B. Franklin*

NOTE—Type OF is readily converted into type OG for gas fuelization.

*Distributed by*

OIL WELL SUPPLY COMPANY

*Branches in All Oil Fields*




# The Habit of Success

The ability of the Hope Company to deliver a job on or ahead of schedule in spite of all obstacles, finds convincing proof in the thousands of miles of Hope-built pipe lines, threading the country from Eastern to Western fields and from Canada to Mexico. A large percentage of this mileage represents repeat contracts with satisfied clients.

**HOPE SERVICE**

Field and Market Analysis ... Engineering Counsel and Design ... Organization and Finance ... Construction and Equipment ... Management and Operation.

Back of this ability stands the loyalty of an organization accustomed to success, with leaders who have dared to pioneer.

It is this habit of success, born of years of progressive achievement, which is one of the outstanding values offered to the natural gas industry in Hope Service.

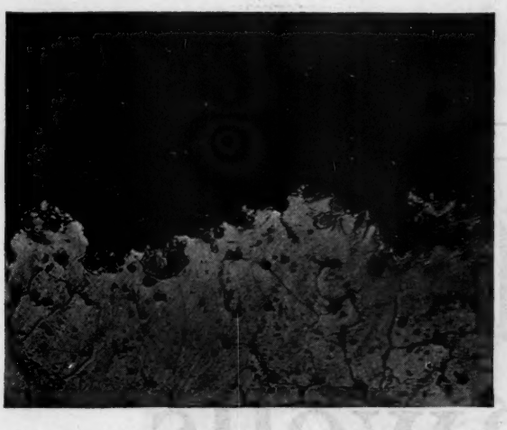
## HOPE ENGINEERING CO

ENGINEERS AND CONTRACTORS IN PIPE LINE CONSTRUCTION

NEW YORK, N.Y. — *Engineering-Construction Management* — TULSA, OKLA.

MOUNT VERNON, OHIO, U.S.A.

"AMERICAN INDUSTRY NEEDS MORE NATURAL GAS"



*The destructive effect of corrosion on unprotected pipe after it has been in the ground. Photograph enlarged 250 times*

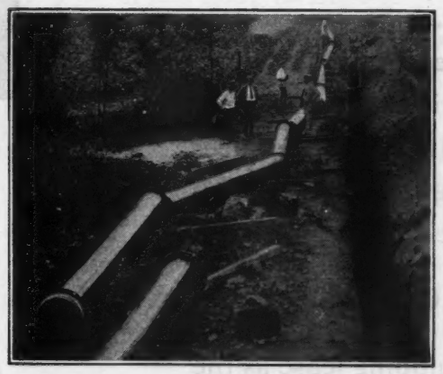
# This can't happen when your pipe is coated with BITURINE

Unprotected pipe is so defenseless against the attack of corrosion. Most pipe line men agree, therefore, that some form of protective coating is necessary if their lines are to render maximum service.

The question "What coating shall we use?" has been answered by the development of Biturine. Biturine products are the result of 23 years of research in the laboratories of Hill, Hubbell & Company, who, for that period, have specialized in the development of protective coatings for metal.

Biturine, the base from which these products are made, is different from other bituminous coatings. Its major constituent is sulphur-free coke oven pitch, run to our own specifications, then skilfully blended at high temperatures with refined natural asphalts. This mixture then goes through a process which causes perfect chemical union of the bitumens, resulting in a product proof against acids and alkalis and that will not absorb moisture—a perfect defense against corrosion.

There are tens of thousands of miles of pipe in the ground today on which Biturine has been applied because it has met the most exacting competitive tests and because it has proved its ability to stand up in actual service.



*16-inch Gas Line—Oklahoma Natural Gas Corp., near Tulsa, Oklahoma — coated with Biturine Enamel.*

**BITURINE COATINGS**

Biturine Enamel  Biturine Enamel Primer*
Biturine Coupling Solution
Biturine Solution No. 5  Biturine 70-30

Biturine Enamel Primer can be obtained with Inhiburine

Let us send you literature giving complete details about Biturine Coatings and a list of satisfied users.

***A New Development***
***Pipe mechanically wrapped and coated* at the mill**

By the exclusive Hill, Hubbell & Company process you can now purchase line pipe mechanically coated and wrapped *at the mill*. If you are contemplating laying new lines you should get the facts about this process now available for the production of six leading pipe mills.

***INHIBURINE**

*This entirely new inhibitor with extraordinary anti-corrosive powers is now being incorporated into Biturine Primer whenever specified. Being solvent in bitumens it becomes an integral part of the priming coat and thereby functions as a second line of defense against corrosion should the Biturine Enamel coating be penetrated.*

## GENERAL PAINT CORPORATION

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THE MARTIN-LOOMIS PUMP DYNAMOMETER

# A Load Indicator *for pumping* wells

*The*

## MARTIN-LOOMIS PUMP DYNAMOMETER

This instrument gives an accurate record of pump operations. Locates and segregates pumping troubles. Measures efficiency of pumping equipment. Accurately indicates correct counterbalance.

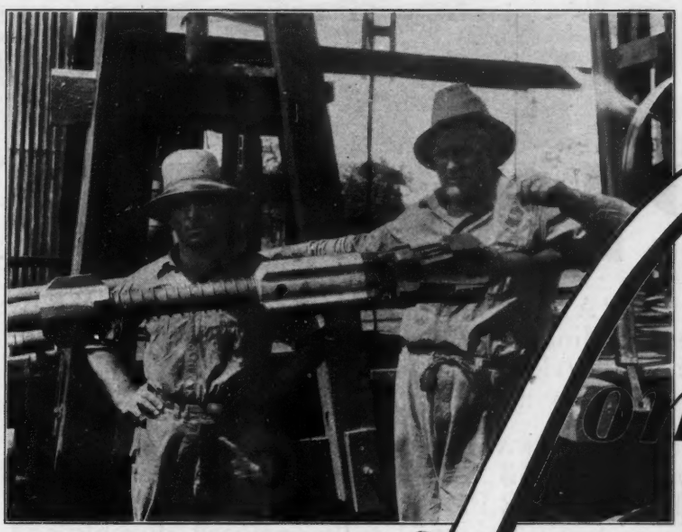
SIMPLE — ACCURATE

As necessary on a pumping lease as the Weight Indicator is on a drilling well. Write for Descriptive Folder!

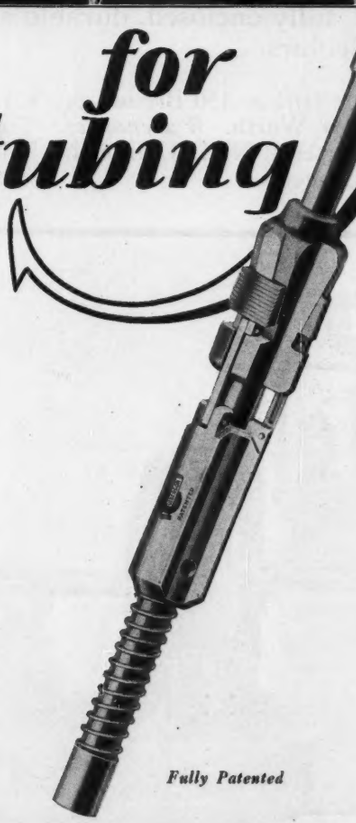
**MARTIN-LOOMIS CORPORATION**

2827 Cherry Ave., Long Beach, California

WEIGHT RECORDING, MEASUREMENT AND CONTROL



# Something to lean on for tubing safety



*Fully Patented*

However exacting your plans may be for the protection of your tubing, the Guiberson Tubing Catcher will support you. H. L. Ingram, Driller, (with the pouch in his hand) and R. E. Eakers, Tooldresser, now working in the North Maud Field, depend on it consistently, having never dropped a string of tubing with a Guiberson Catcher in the hole.

The Guiberson Catcher will catch a string of tubing neatly and positively within three inches. It must stop its own weight, in an empty casing, within that distance, before it can leave the factory. The strong spring operates with or without fluid in the hole. The heavy striker weight overcomes any retarding action of mud or paraffin. Dove-tail tracks keep slips in perfect alignment and guide them instantly to where they grip the casing wall. The Guiberson Tubing Catcher is a safety appliance to lean on with confidence. Enjoy the sense of perfect security which it provides.

*"Better Be Safe Than Sorry"*

**THE GUIBERSON CORPORATION**

Box 1106, Dallas, Texas

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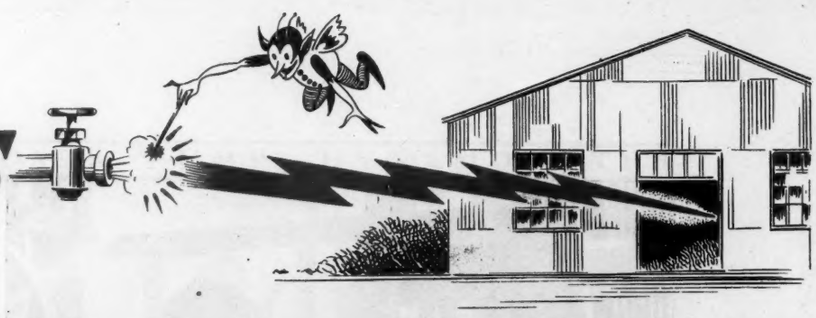
**GUIBERSON**

BETTER BE SAFE THAN SORRY

# Turns CHEAP GAS into Economical ELECTRIC POWER

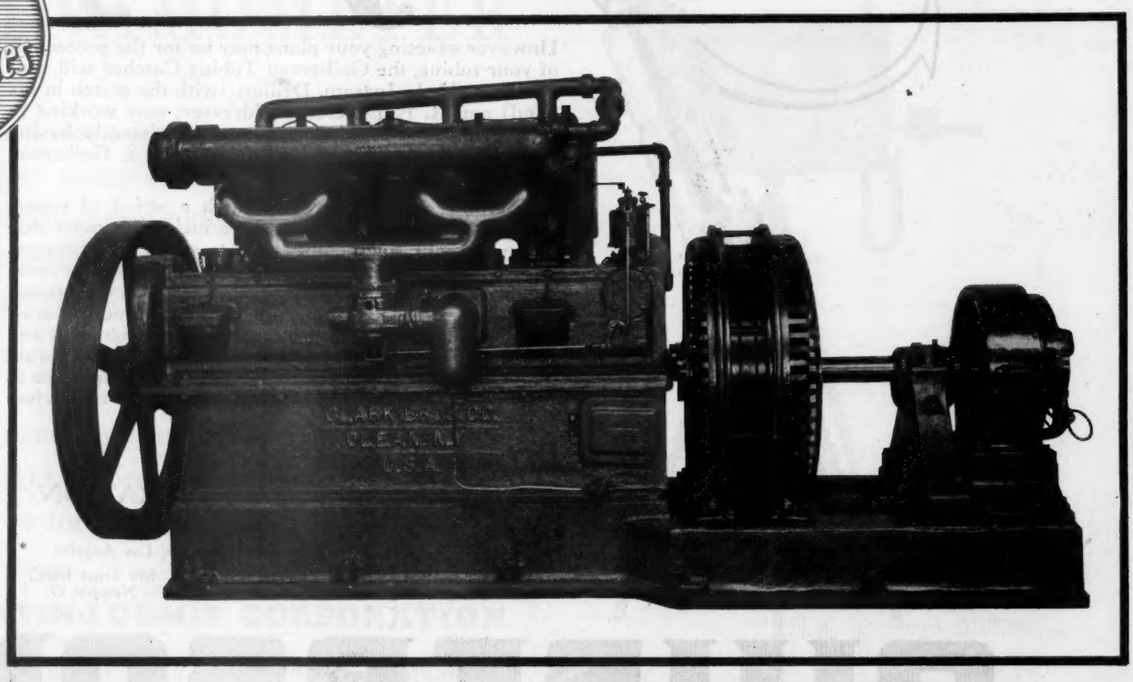


The CLARK GENERATOR UNIT, direct gas engine driven, is used around many gasoline plants to turn cheap gas into dependable and economical electric power for running water pumps, oil pumps and other auxiliary machinery.

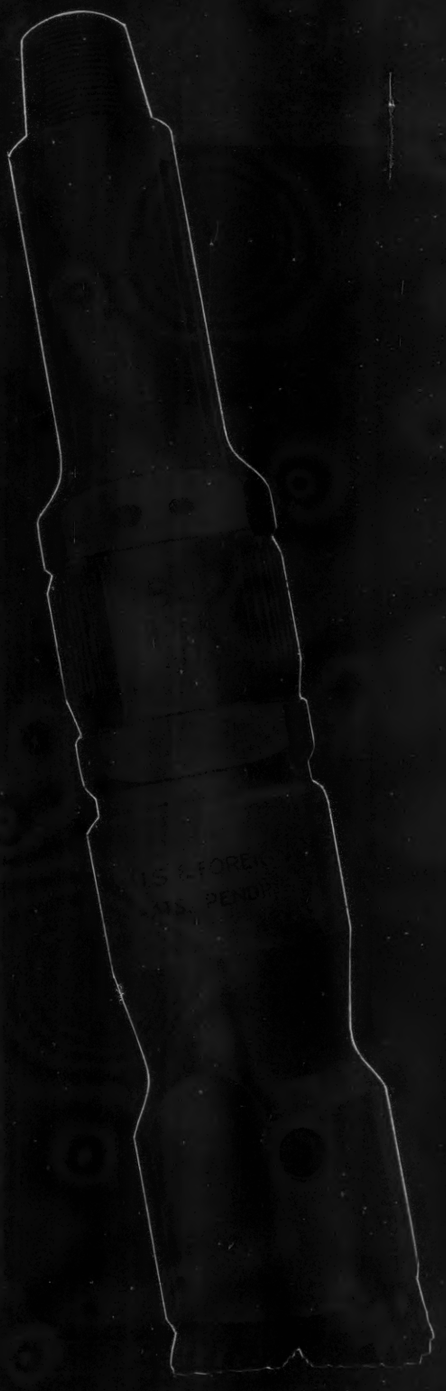
Consists of a generator (75 k.v.a.—480 v.—3-phase—60-cycle—400 R.P.M.) direct connected to CLARK 4-cylinder gas or gasoline engine of 90 brake H.P. at 400 R.P.M., with direct connected exciter. The entire unit is perfectly balanced, fully enclosed, durable and easily transported. Ask for full particulars.

Clark Bros. Company, Olean, N.Y. *Export Office:* 150 Broadway, N.Y.C. *Mid-Continent Sales Offices:* Tulsa and Fort Worth. *Warehouses:* Tulsa, Okla.; McCamey and Sweetwater, Texas; Artesia, N.M. California: Smith, Booth, Usher Co., 228 S. Central Ave., Los Angeles.

Compressors and Gas Engines



# CLARK



Here it is

the

BIT

ROCK BIT

"a BIT ahead"

(Licensed Under Powell Patents Pending)

NOT just another trick bit, but a real rock bit of advanced design that will make many times more hole at a correspondingly lower cost than any other rock bit on the market.

GEAR-DRIVEN SELF-SHARPENING

*Send for complete information and performance records*

**Oil Tool Division of**

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# KEYSTONE
## Rust-Resisting
## COPPER STEEL
## SHEETS

KEYSTONE COPPER STEEL — AMERICAN SHEET AND TIN PLATE COMPANY — PITTSBURGH

Keystone is the *original* Copper Steel. It gives maximum *rust-resistance* and lasting service for all uses above or below the ground. Demand this alloy

# For Tanks, Barrels and Drums

## Roofing and Siding

## Field Construction and All Oil Country Uses

By using KEYSTONE Copper Steel you build for the future. Where rust and corrosion destroy, KEYSTONE (steel alloyed with copper) affords greatest protection. Tests by leading metallurgists prove this. Insist upon sheets with brand shown above. We are also leading manufacturers of Tin and Terne Plates.

# AMERICAN

## STEEL SHEETS *for* Every Purpose

For information write nearest District Sales Office: Chicago, Cincinnati, Denver, Detroit, New Orleans, New York, Philadelphia, Pittsburgh and St. Louis. Send for a copy of our ANTI-CORROSIVE METAL booklet.

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*Quality Products* — *Dependable Service*

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At no time in its history has Halliburton failed to appreciate the *responsibilities* it assumed when it became the world's leading oil well cementing company. Halliburton chemists are constantly testing waters, experimenting with mud and fluids, co-operating with cement manufacturers. Halliburton engineers are ever at work seeking to develop and improve processes and equipment.

The price of leadership is unremitting research, everlasting vigilance. It is a price Halliburton gladly assumes.

# HALLIBURTON
OIL WELL CEMENTING CO.
*Duncan, Oklahoma*

*Unusual cementing problems, general oil industry information and a dash of humor are combined in the monthly contents of THE CEMENTER. To be placed on the subscription list, sign and return the coupon today.*

Halliburton Oil Well Cementing Co.
Dept. OG, Duncan, Okla.

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# The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

VOL. 28. NO. 30. TULSA, OKLAHOMA, DECEMBER 12, 1929


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# Operations Show Need of Stabilization

**Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.**

## Continuance of Efforts Necessary to Maintain Stabilization. Operators Watching California Developments

By Andrew M. Rowley

**Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.**

The need for constant vigilance in the conservation movement to hold production of crude oil down to market requirements was emphasized during the past week by developments in widely scattered sections of the country which show conclusively what may be expected in the matter of overproduction if there be even the slightest let-down in efforts to develop conservatively and economically newly discovered producing areas. The Van Zandt Pool in East Texas has wonderful possibilities but thanks to the unit plan of operation being carried on there by the Pure Oil Company and others interested in the field, no flood of crude from that pool will menace the crude oil market.

Discovery of what may prove to be a new pool in Andrews County in West Texas also has possibilities. Operations at Santa Fe Springs and Kettleman Hills in California are disturbing operators on the Pacific Coast who are interested in holding production down more nearly to facilities for handling the crude and market demands. In fact there is some talk heard of a possible reduction in price at Santa Fe Springs unless the conservation movement there succeeds in stemming the flood of oil which that field would produce were there any weakening of the conservation plan.

Zwolle, La., is experiencing somewhat of a boom as a result of developments in that area while the Gulf Coast and Southwest Texas areas are being watched closely, due to promising results obtained from operations in those sections.

The situation in the Mid-Continent continues good with operators continuing in accord in plans to maintain a balance between production and demand.

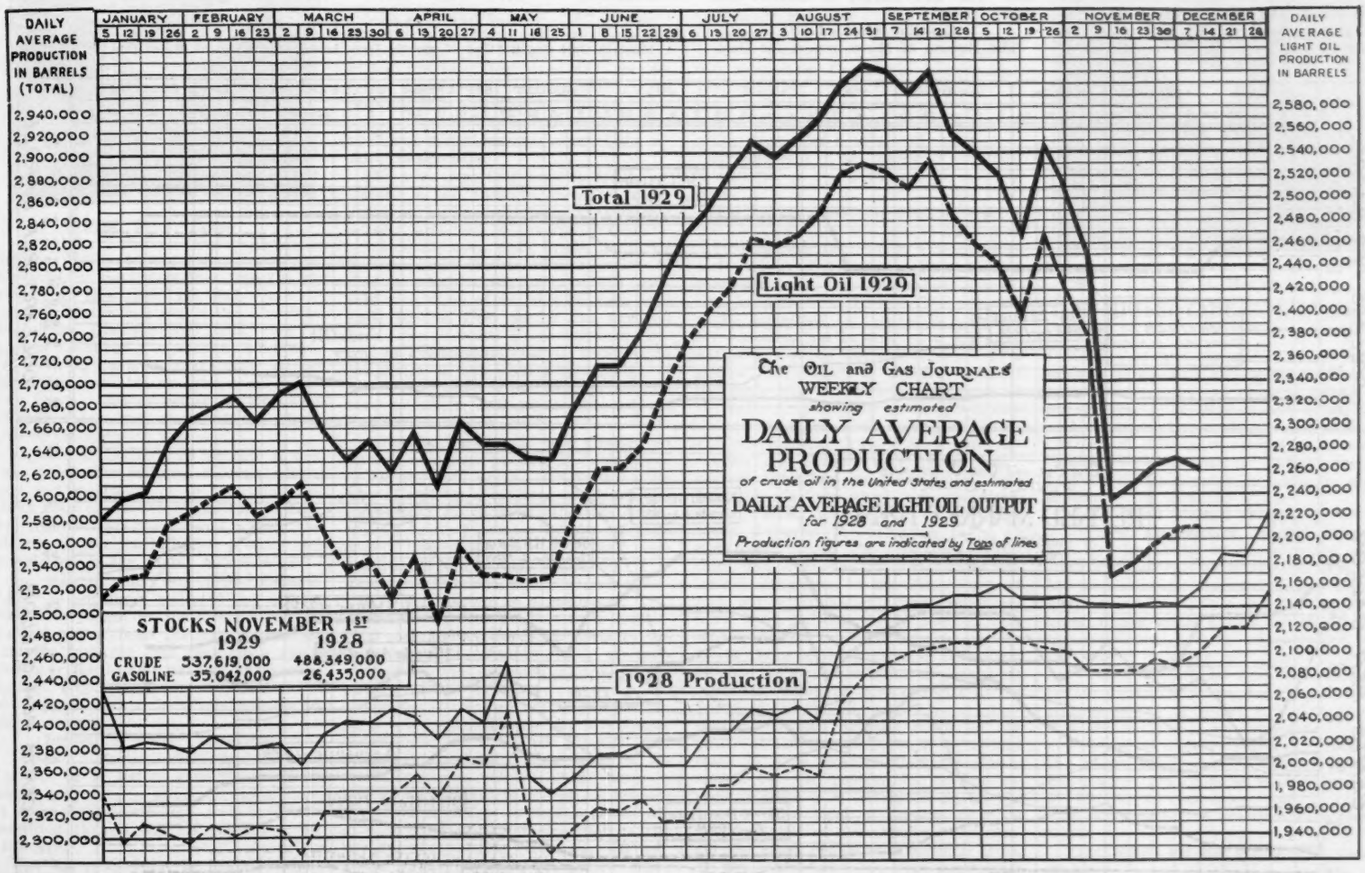
While the proposal to curtail runs to refineries during the first four months of 1930 naturally would reduce the demand for crude oil, stabilization of the refined oil price structure would benefit crude oil producers in making more firm the crude price structure. Such stabilization would eliminate any necessity for a readjustment, usually downward, of prices during the summer months.

### PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended December 7, and a comparison with the previous week follows:

| | Dec. 7 | | Nov. 30 | |
|---|---|---|---|---|
| | Light | Heavy | Light | Heavy |
| **Oklahoma—** | | | | |
| Oklahoma City | 72,620 | ..... | 55,660 | ..... |
| St. Louis-Pearson | 54,845 | ..... | 53,790 | ..... |
| Seminole | 233,210 | ..... | 239,850 | ..... |
| Northern Miscellaneous | 236,050 | ..... | 240,255 | ..... |
| Southern Fields | 57,740 | ..... | 58,025 | ..... |
| Total Oklahoma | 654,465 | ..... | 647,580 | ..... |
| **West Texas—** | | | | |
| Hendricks | 98,445 | ..... | 101,745 | ..... |
| Yates | 145,010 | ..... | 146,088 | ..... |
| Remainder | 111,837 | ..... | 112,160 | ..... |
| Total West Texas | 355,292 | ..... | 359,993 | ..... |
| North Louisiana | 33,090 | 5,500 | 31,890 | 5,510 |
| Arkansas | 19,055 | 43,745 | 18,665 | 44,335 |
| North Central Texas | 145,151 | ..... | 145,680 | ..... |
| Texas Panhandle | 100,615 | ..... | 101,085 | ..... |
| East Central Texas | 18,420 | ..... | 17,807 | ..... |
| Kansas | 108,965 | ..... | 108,880 | ..... |
| Total Mid-Continent Area | 1,435,053 | 49,245 | 1,431,580 | 49,845 |
| Gulf Coast | ..... | 178,185 | ..... | 182,975 |
| Southwest Texas | ..... | 57,784 | ..... | 58,951 |
| Eastern | 135,000 | ..... | 133,500 | ..... |
| Rocky Mountain Area | 70,211 | ..... | 74,366 | ..... |
| **California—** | | | | |
| Santa Fe Springs | 168,000 | ..... | 159,000 | ..... |
| Long Beach | 105,000 | ..... | 107,000 | ..... |
| Huntington Beach | 41,000 | ..... | 41,000 | ..... |
| Elwood | 34,000 | ..... | 37,500 | ..... |
| Ventura Avenue | 53,000 | ..... | 60,000 | ..... |
| Seal Beach | 29,000 | ..... | 29,000 | ..... |
| Remainder of State | 143,000 | 126,000 | 139,000 | 129,000 |
| Total California | 573,000 | 126,000 | 572,500 | 129,000 |
| Total United States | 2,213,264 | 411,214 | 2,211,946 | 420,771 |
| Grand Total | | 2,624,478 | | 2,632,717 |

**Total Decrease, 8,239 Bbls.; Light Oil Increase, 1,318 Bbls.**



# Fuel Oils Again Advance in Oklahoma

## Strong Demand for All Grades With Low Cold Test Material Scarce. Refinery Gasoline, Natural Gasoline and Kerosene Weak.

By C. O. Willson

With several grades practically unobtainable for immediate shipment in the Oklahoma (Group 3) market, fuel oil prices again advanced during the past week. The higher prices are in line with a general trend in the interior market, including the Mid-Continent and Middle Western states.

In Oklahoma the first of the week 70 cents appeared to be the low of the fuel oil market for any commercial grade. Prices ranged up to $1.25 per barrel for high gravity low cold test grades. Even the grades with a high cold test and those containing considerable free carbon ("mine run") were in demand at the low of the market.

Fuel oils were the only products to show any strength in the Oklahoma market. The domestic grades of gasoline and kerosene are weak and, although the general range of prices has not changed, buyers are dominating the market, and in spot sales are often able to secure additional price concessions. The higher gravity grades of refinery gasoline are firmer and in addition to the export business are more active in the domestic market.

**Natural Gasoline Lower**

Natural gasolines, which showed unexpected strength through the fall months, have weakened since the first of the month. All grades are lower in price, but the weakness centers in the B, BB and C grades. The output of these grades has increased with the colder weather. This increased output, coupled with the fact that most of the contracts are based on the A and AA grades, has resulted in large quantities of the remaining grades being offered on the spot market. While no large orders have materialized, the regular demand for natural gasolines has been steady and manufacturers are hopeful that prices can be maintained at their present levels for the remainder of the month. All grades were one-quarter cent under the prices prevailing a week ago.

Among the remaining products distillates and gas oils are steady. Prices on U.G.I. gas oil were moved up from a low of 2¾ to 2⅞ cents. This advance appears to be a reflection of the scarcity of fuel oil. Bright stock prices are unchanged, although the demand is less active. The wax market is inactive and prices nominal.

**Gasoline Stocks Less**

The Bureau of Mines report for October covering gasoline production and stocks which is summarized in the accompanying table reflects an unusual situation in which gasoline stocks at Mid-Continent refineries decreased 200,000 bbls. during the month. Additions to gasoline stocks usually materialize in October and this year for the country as a whole refinery gasoline stocks increased from 33,222,000 bbls. at the end of September to 35,042,000 bbls. at the end of October.

Gasoline stocks were reduced in the Oklahoma-Kansas area and Texas outside of the Gulf Coast. The North Louisiana and Arkansas area had a small increase. The heavy export purchases which started in October has helped the Mid-Continent situation so that gasoline inventories on October were only about 1,000,000 bbls. greater than on the same date last year although for the entire country refinery stocks were 8,607,000 bbls. greater.

The October report of the Government also shows that crude oil runs to stills in the Mid-Continent were less in October than in the same month last year. Crude runs in October, 1928, averaged 555,000 bbls. daily and in October this year 546,000 bbls. daily. For the country as a whole October runs this year averaged 2,851,000 bbls. daily, which compares with average daily runs of 2,570,000 bbls. last year in October.

These data and those published elsewhere in this issue covering probable Mid-Continent runs for December show that this group of refiners as a unit are operating on a more conservative basis

(Continued on Page 145)

### REFINED MARKET BAROMETER

The past week was devoid of any outstanding developments in refined markets. Gasoline output continues at a high rate and with a seasonal slump in consumption active competition in tank car sales is general with the greatest weakness centering in the Mid-Continent and Middle West. In the latter area, kerosene also continues weak with lower prices. The demand for all grades of fuel oils appears to be exceptionally heavy as the winter season starts including gas oil used in the manufacture of artificial gas. In some areas this demand has materially strengthened prices, particularly on the heavier grades of fuel oil. Natural gasolines east of California for the first time in several weeks reacted with lower prices effective on all grades. Bright stock prices were again lowered on the East Coast with a generally steady market in other areas. The wax market is inactive for both export and domestic shipments and refiners who have been forced to sell have taken lower prices.

**Mid-Continent**—All grades of fuel oil in strong demand and prices higher. Gas oil and furnace oil in fair demand at steady prices. Domestic grades of refinery gasoline and natural gasoline sluggish and prices lower. Kerosene continues weak. Wax inactive. Other products unchanged.

**East Coast**—Colder weather brings heavy demand for kerosene and furnace oil distillates. Bright stock prices lower. Fair demand for gasoline with no change in prices. Good movement of bunker grades of fuel oil. Many contracts for Diesel oil being closed. Wax demand inactive.

**Pennsylvania**—No important price changes. Gasoline and kerosene slow. Demand for bright stocks and high viscosity neutral oils not so active.

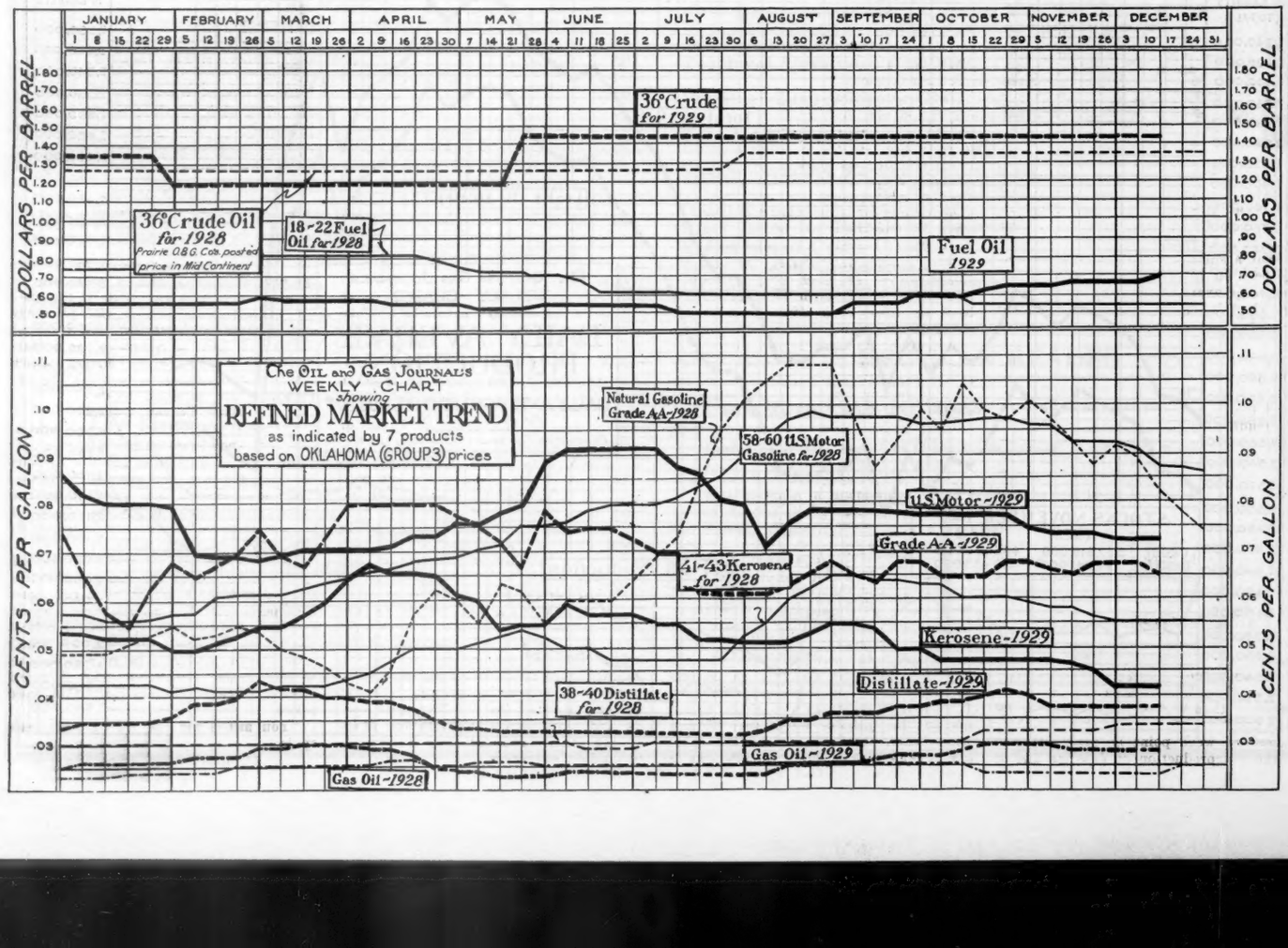
**Chicago**—U. S. Motor gasoline slow and prices lower. Small orders for kerosene. Warmer weather slows up demand for furnace oil. Heavy demand for all grades of fuel oil and prices generally higher.

**Gulf Coast**—No improvement in demand for pale and red oils. Gasoline prices weak. Fair demand for kerosene. No change in fuel oil prices.

**MID-CONTINENT REFINERY OPERATIONS**
(Data given in thousands of barrels)

| | Crude run to stills | | | Gasoline prod. | | | Gasoline stocks† | | |
|---|---|---|---|---|---|---|---|---|---|
| | Oct., 1929 | Sept., 1929 | Oct., 1928 | Oct., 1929 | Sept., 1929 | Oct., 1928 | Oct., 1929 | Sept., 1929 | Oct., 1928 |
| Okla., Kans., etc. . | 9,962 | 9,855 | 9,984 | 5,435 | 5,296 | 5,585 | 2,782 | 2,937 | 2,120 |
| Texas* ..... | 5,049 | 4,760 | 6,007 | 2,075 | 1,908 | 1,773 | 898 | 967 | 657 |
| Louisiana-Ark.* .. | 2,211 | 2,313 | 2,087 | 791 | 726 | 597 | 303 | 287 | 154 |
| Total ..... | 17,222 | 16,928 | 18,078 | 8,301 | 7,930 | 7,955 | 3,983 | 4,191 | 2,931 |

*Except Gulf Coast. †End of month. Data based on Bureau of Mines reports.



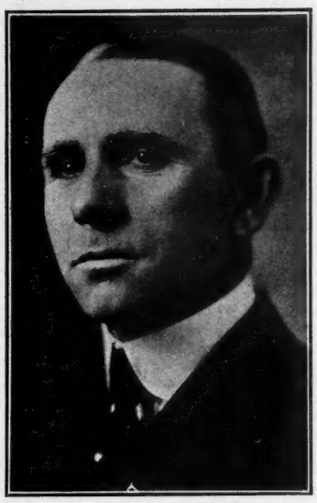
# Oil Industry's Big Improvement Program

## Capt. J. F. Lucey, Representing Institute at Hoover Conference, Pledges Immediate Survey of 1930 Requirements

By Charles E. Kern
*Washington Bureau, The Oil and Gas Journal*

WASHINGTON, D. C., Dec. 6.—Four hundred industrial leaders gathered in Washington this week in response to the call issued by President Herbert Hoover for concerted industrial activity, a more representative assemblage of outstanding business men never having come together previously with the purpose of united action for the public welfare. The meeting was held in the auditorium of the Chamber of Commerce of the United States.

The American oil industry was ably represented at this meeting by Capt. J. F. Lucey, president of the Lucey Petroleum Co., Dallas, Tex., Captain Lucey having been selected by the American Petroleum Institute for this important



**Capt. J. F. Lucey**

mission. His statement was a candid explanation of conditions that face the industry at this time. He had come directly from the meeting of the American Petroleum Institute and was able to present a survey of conditions after having been in intimate touch with all information available at the annual meeting. Captain Lucey called on President Hoover today and discussed the situation of the industry with him.

Captain Lucey did not hesitate to say that unless the refiners, through education and knowledge of the situation, restrict their production of gasoline to market requirements they would nullify the effects of the curtailment already accomplished in the supply of crude oil.

In making this statement, Captain Lucey in substance reflected the official resolution passed by the directors of the American Petroleum Institute. He stated that the Institute feels very much gratified over the balance of production with market requirements in the production of crude oil that it had been possible to bring about.

**Industry's Better Condition**

"The oil industry today," said Captain Lucey, "is in better condition than it was a year ago, in better condition than it was three years ago and in better condition than it was six months or 90 days ago."

The one weak point he explained was in the overproduction of gasoline and if that condition were permitted to continue it would threaten the stability and prosperity of the industry.

"That is the problem we are now facing, and we are yet undetermined as to how we are going to solve it," he said.

Expressing the confidence of the American Petroleum Institute in the leadership of the National Business Survey Conference he said the oil industry is prepared to carry out any program of co-operation that is decided upon at this meeting.

"I shall recommend tonight," he said, "and I am sure the American Petroleum Institute will carry it forward, that we make an immediate survey of plant construction improvements."

Captain Lucey's remarks carried to every delegate in the large auditorium and he was greeted with a round of applause as he finished stating the case of petroleum.

The entire day was taken up by statements from the industrial leaders, all of whom showed an earnest desire to co-operate in this National Business Survey Conference called by President Hoover, whose address urging activity received universal approval.

**Captain Lucey's Statement**

Captain Lucey's complete remarks follow:

"I come from the convention of the American Petroleum Institute, which is now in session in Chicago. I do not know that we are quite clear as to just exactly what was desired at this meeting, but I have here a very brief presentation passed by the board of directors, of whom there are something over 50 representing every phase of the industry, producing, refining, manufacturing and distributing. It reviews the call, and goes on as follows:

"'The petroleum industry is strikingly important in its relation to the economic life and social welfare. It occupies, by force of the essential nature of its products, a position of outstanding significance to general prosperity. It is closely related to all industry and to the everyday life of the individual.

"'If the revolutionary industrial changes of recent years have been in speed and spread, rather than in fundamental structure, as the committee on recent economic changes of the President's conference on unemployment believes, the petroleum industry reflects the impulse of the times to a notable extent.

**Gasoline Overproduction**

"'For several years past there has existed a condition of overproduction both of crude oil and refined products, including gasoline. The thought in the industry has been directed toward an effort to remedy this situation, with a view to more nearly balancing production and consumption of crude oil and the principal refined products.

"'It is now possible to say that the supply of crude oil in the United States, by voluntary action on the part of the individual producers in the several states in this country, has been curtailed to approximate equilibrium with current refinery demand. This has been in part fulfillment of the expressed recommendation of the Federal Oil Conservation Board that the industry itself take steps to conserve the petroleum supply.

"'The refinery demand for crude oil in 1929, however, has been inflated to the extent that gasoline has been overproduced by approximately 8,000,000 bbls., which gasoline must be liquidated in 1930. It is, therefore, obvious that the current level of refinery demand for crude oil can be maintained only by virtue of further overproduction of gasoline.

"'In the petroleum industry a condition of gasoline overproduction is recognized as existing and is promising to grow more serious and acute if the supply of this commodity is not promptly and substantially curtailed, and the first quarter of 1930 is recognized as a particularly critical period during which gasoline stocks threaten to mount to uneconomic and unsound levels.

**Col. P. J. Hurley**
**Who as Secretary of War becomes a member of the Federal Oil Conservation Board, the first oil man to serve in that capacity.**

**Must Curtail Output**

"'Unless the refiners, through education and knowledge of the situation, restrict their production of gasoline to market requirements, the continued conversion of crude oil into gasoline at too rapid a rate would nullify the effects of the curtailment, already accomplished, in the supply of crude oil.'

"That is the official resolution passed by the directors of the American Petroleum Institute. I might comment upon that personally but my comments would not be my own views but would reflect the views of producers, whether small independent producers or representatives of the major companies. And I might answer a few of the questions that were asked.

"You asked for the strong and weak spots.

(Continued on Page 74)

## DRILLING AT SANTA FE SPRINGS AND KETTLEMAN BRINGS CRISIS

By L. P. Stockman

LOS ANGELES, Calif., Dec. 9.—Two momentous questions will come up for consideration by California operators within the next few days and the decisions reached will be of paramount importance from a production and economic standpoint. Both involve conservation work and will therefore command the utmost consideration.

The most important question facing operators is the absolute necessity of effecting a drilling moratorium. It is tentatively proposed to suspend immediately all development work in the Santa Fe Springs Field for a definite period of time. A careful check indicates the probable completion of at least 50 deep zone wells in this field during the next 30 days. The situation is causing many operators considerable anxiety because the completion of any such large number of new wells would push field production back up again and offset most of the curtailment now in effect.

Attention has already been directed on several occasions to the probable flood of oil expected around the first of the year if drilling operations continued unabated and the present situation is extremely critical because of the inability of pipe line companies to store any large quantity of crude and refined oil. It is imperative that the supply of raw material be kept down to a minimum.

The most redeeming feature in connection with the approaching crisis is the fact that most operators realize the seriousness of the situation and have expressed their willingness to meet the emergency if some satisfactory basis can be worked out. The recent unanimous endorsement of a similar proposal and subsequent suspension of drilling by Elwood operators will no doubt prove a powerful stimulant to Santa Fe Springs operators to follow a similar procedure It does not take a mathematician to figure out the possible effect that 50 new wells would have on production when one considers that recent completions in the lower Clark zone at Santa Fe Springs have averaged 3,000 bbls. a day initially with several making in excess of 7,000 bbls. daily. Confidence is expressed, however, that operators will be able to get together on common ground and effect a satisfactory solution. Many of the major companies have already announced their approval of the proposal and hope is entertained for a unanimous endorsement.

The second important question coming up for discussion this week deals with future conservation work. One immediately thinks of Kettleman Hills in this connection and the subconscious suggestion happens to be correct. The proposal to be submitted to interested operators for consideration is only of a tentative nature at present but should result in a general expression of opinion. Several proposals will be made but the basis of the entire matter rests on the possibility of unit operation both as to production and development. Advocates of unit operation cite smaller development costs, cheaper operation, and a number of other favorable factors which are not questioned. When one gets down to brass tacks, however, the situation takes on a different aspect. The ideal time to initiate unit operation is immediately following completion of the discovery well and not after several large producers have been finished. It is doubted that unit operation will be effected in the North Dome of the Kettleman Hills Field because the structure is too obvious. Unit operation would be advantageous to the Standard Oil Co. and a number of other concerns holding acreage down on the flanks of the structure but it is thought there is little possibility of the Continental Oil Co. pooling its holding especially since it is sitting on top of the world with a block of acreage right on the very apex of the anticline. The middle and south domes at Kettleman Hills, on the other hand, are very susceptible to unified operation.

# Mid-Continent Refinery Runs Less

## December Operations to Be Slightly Under Those of November. Total Decrease of 50,000 Bbls. Daily Since June

By C. O. Willson

Refinery crude oil runs to stills at Mid-Continent (Oklahoma, Kansas, Arkansas, North Louisiana and Texas except Gulf Coast) refineries which have been slowly declining since early June will be less in December than in November according to a check of operations completed the first of the week.

As has been the case for several months the December decline is not large totaling 4,843 bbls. daily as shown in the accompanying table. The indicated crude oil runs to stills for December of 540,630 bbls. daily represents a decrease of 49,120 bbls. daily under the runs for June which was the peak period of the year in Mid-Continent refinery operations. Since June 1 there has been a consistent month-to-month decline in crude oil run to stills except for November when the runs were practically the same as in October.

The decline can be accounted for as due to a weak gasoline market. Gasoline prices were advanced in the late spring in expectation of a favorable year. Prices reached their peak in early June. It became apparent at that time that prices could not be maintained and they have gradually declined since that time so that they are now at the low point of the year.

Some refiners have pointed to the 50,000-bbl. a day decline in crude oil runs to stills as proof of their contention that the Mid-Continent area has done its part in reducing refinery operations to prevent a heavy accumulation of gasoline stocks. In contrast to most of the other refining areas, Mid-Continent refinery crude oil runs to stills are now 13,870 bbls. a day less than they were a year ago. Mid-Continent runs for several months have been approximately the same as the same period last year although other areas have shown increases as high as 15 per cent with an average increase of about 9 per cent for the entire country.

It is probable that additional reductions in Mid-Continent crude oil run to stills will develop unless crude oil prices are reduced or gasoline prices advanced. Neither development appears probable at this time.

With many refiners securing under 7 cents in their spot sales of gasoline there is no incentive for refiners to maintain their present operations, a few plants at least showing losses for the past 60 days. The strength shown in fuel oil prices may help a few plants but to a majority of refineries with cracking processes fuel oil prices are not as important as they were a few years ago.

### Oklahoma

Oklahoma crude runs to stills in December will be practically the same as in November. The Homaokla Oil Co. has shut down its small plant at Allen, Okla. Controlling interest in this company was recently acquired by the Sunray Oil Co. of Tulsa. The new owners have not announced their plans in regard to the operation of the refinery.

The Continental Oil Co. continues to run its large refinery at Ponca City, Okla., at about 50 per cent capacity. This plant can refine 30,000 bbls. daily and has operated for brief periods at capacity. Over the past few months the company has pursued a policy of reducing runs to take care of its own station requirements and its regular jobber trade. The Transcontinental Oil Co. has reduced the runs of its Bristow plant from 4,000 to 2,500 bbls. daily.

### Kansas

The reports that Kansas refiners have curtailed operations at their plants is not supported by the December report. A few plants reduced their runs in November but no further reductions are in prospect for December.

**RUNS TO STILLS AT MID-CONTINENT REFINERIES**

| | |
|---|---|
| **1927** | |
| November 1 | 426,654 |
| December 1 | 417,455 |
| **1928** | |
| January 1 | 415,125 |
| February 1 | 418,275 |
| March 1 | 427,145 |
| April 1 | 451,225 |
| May 1 | 479,225 |
| June 1 | 487,135 |
| July 1 | 506,310 |
| August 1 | 543,625 |
| September 1 | 563,270 |
| October 1 | 547,820 |
| November 1 | 550,000 |
| December 1 | 520,000 |
| **1929** | |
| January 1 | 508,550 |
| February 1 | 506,800 |
| March 1 | 514,950 |
| April 1 | 530,530 |
| May 1 | 577,500 |
| June 1 | 585,030 |
| July 1 | 565,800 |
| August 1 | 555,250 |
| September 1 | 552,300 |
| October 1 | 544,720 |
| November 1 | 545,473 |
| December 1 | 540,630 |

The Barnsdall Refineries, Inc., has shut down its Wichita plant temporarily. This is in line with the company's policy of reducing its plant operations to conform with the seasonal slump in demand. The operations of its two Oklahoma plants have not been changed. The Skelly Oil Co. has reduced its runs at Eldorado to 10,700 bbls. daily.

### North and Central Texas

The runs of North and Central Texas show a slight increase for December. The Magnolia Petroleum Co. has boosted its runs at Fort Worth, the Macmillan Petroleum Co. at Isom, and the Panhandle Refining Co. at Wichita Falls. The American Refining properties has decreased runs to 1,500 bbls. daily.

The Tarrant Petroleum Co. of Fort Worth several weeks ago took over the small skimming plant of the Primtex Refining Co. located at Grand Prairie between Dallas and Fort Worth. Changes are being made at the plant but the owners do not expect to operate at capacity until spring. A. Cobden is president of the company, R. J. Cobden, general manager, and J. F. Muense, superintendent.

### West Texas

West Texas starts the new month with no change in total crude runs to stills. The better crude oil market is expected to help the West Texas refinery operations materially. Even in cases where the plants have cracking facilities the fuel oil output is large. Due to high freight rates West Texas refiners secure the lowest prices for their fuel oil of any Mid-Continent group.

The accompanying tables show the McCamey plant of the Humble Oil & Refining Co. operating at 8,100 bbls. daily. Within the past few days the plant has shut down its crude stills until the first of the year. The plant is being reconditioned and will resume operations about the first of the year. Before being shut down the plant had run its crude oil quota for the year.

### Arkansas and North Louisiana

In Arkansas the Lion Oil Refining Co. has reduced crude oil runs to stills 1,500 bbls. daily. The Houston Oil Co. plant at Camden is still shut down. Operations may be resumed after the first of the year.

In North Louisiana, the runs of the Louisiana Oil Refining Corp. have been increased to 17,000 bbls. daily. The Crystal Oil Refining Co. has reduced from 5,300 to 4,500 bbls. daily.

**MID-CONTINENT REFINERY OPERATIONS**

(Based on operations December 1, 1929, and November 1, 1929)

| Districts— | No. of plants. | Daily crude capacity bbls. | Daily cracking capacity bbls. | Plants operating Dec. 1 | Runs to stills Dec. 1 | Plants operating Nov. 1 | Runs to stills Nov. 1 | Daily decrease Dec. 1 |
|---|---|---|---|---|---|---|---|---|
| Arkansas | 9 | 47,800 | 13,150 | 8 | 28,900 | 8 | 31,000 | 2,100 |
| Kansas | 16 | 132,000 | 73,850 | 14 | 90,300 | 15 | 91,950 | 1,650 |
| North Louisiana | 6 | 58,700 | 23,500 | 6 | 40,000 | 6 | 40,300 | 300 |
| Oklahoma | 46 | 308,800 | 116,750 | 41 | 200,750 | 43 | 205,333 | 4,583 |
| N. and Cen. Texas | 36 | 168,200 | 25,000 | 34 | 105,030 | 33 | 101,540 | †3,490 |
| West Texas | 28 | 142,000 | 53,850 | 27 | 75,650 | 27 | 75,350 | †300 |
| Total | 141 | 854,500 | 306,100 | 130 | 540,630 | 132 | 545,473 | 4,843 |

†Increase.

**REFINERY OPERATIONS IN OKLAHOMA**

(Plants which have been in operation during the past year)

| Name and address— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Anderson-Prichard Oil Co., Cyril | 4,000 | 4,000 | 4,000 |
| Barnsdall Refineries, Inc., Barnsdall | 6,000 | 4,000 | 4,000 |
| Barnsdall Refineries, Inc., Okmulgee | 10,000 | 4,000 | 4,000 |
| Bell Oil & Gas Co., Grandfield | 4,500 | 2,000 | 2,150 |
| Champlin Refining Co., Enid | 16,000 | 9,000 | 9,000 |
| Citizens Refining Co., Seminole | 1,000 | 100 | 100 |
| Continental Oil Co., Sapulpa | 10,000 | 2,000 | 2,000 |
| Continental Oil Co., Ponca City | 30,000 | 13,200 | 13,200 |
| Cushing Refining & Gasoline Co., Blackwell | 1,800 | 1,000 | 1,200 |
| Cushing Refining & Gasoline Co., Cushing | 3,500 | 2,000 | 2,200 |
| Eason Oil Co., Enid | 5,000 | 3,000 | 3,000 |
| Empire Oil & Refining Co., Cushing | 5,000 | 4,700 | 4,700 |
| Empire Oil & Refining Co., Okmulgee | 4,000 | 4,000 | 4,000 |
| Empire Oil & Refining Co., Ponca City | 7,500 | 7,500 | 7,500 |
| Garber Refineries, Inc., Garber | 3,500 | 3,000 | 3,000 |
| Gilmer Oil Co., Ringling | 3,000 | (*) | (*) |
| Globe Oil & Refining Co., Blackwell | 7,500 | 7,000 | 7,000 |
| Globe Oil & Refining Co., Cushing | 15,000 | 12,000 | 12,000 |
| Homaokla Oil Co., Allen | 3,000 | (*) | 300 |
| Illinois Oil Co., Cushing | 3,000 | (*) | (*) |
| Imperial Refining Co., Ardmore | 5,000 | 2,900 | 2,900 |
| Independent Oil & Gas Co., Okmulgee | 5,000 | 5,000 | 5,000 |
| Johnson Oil Refining Co., Cleveland | 6,000 | 5,200 | 6,000 |
| Mid-Continent Petroleum Corp., West Tulsa | 40,000 | 22,000 | 22,000 |
| Northwestern Refining Co., Tonkawa | 3,000 | 2,200 | 2,500 |
| Peppers Gasoline Co., Covington | 1,000 | 700 | 800 |
| Pierce Oil Corp., Sand Springs | 8,000 | 7,000 | 7,000 |
| Producers Oil Co., Bristow | 2,500 | 1,500 | 1,500 |
| Producers & Refiners Corp., West Tulsa | 6,000 | 3,500 | 3,500 |
| Pure Oil Co., Ardmore | 5,000 | 2,300 | 2,300 |
| Pure Oil Co., Muskogee | 9,000 | 8,000 | 8,000 |
| Remington Oil Co., Wewoka | 2,000 | (*) | (*) |
| Rock Island Refining Co., Beckett | 2,500 | 2,000 | 2,000 |
| Shaffer Oil & Refining Co., Cushing | 10,000 | 10,000 | 10,000 |
| Sun Oil Co., Yale | 5,000 | 4,900 | 5,000 |
| Sinclair Refining Co., Muskogee | 1,000 | 300 | 300 |
| The Texas Company, West Tulsa | 15,000 | 15,000 | 15,000 |
| Texas Pacific Coal & Oil Co., Wynnewood | 2,500 | (*) | (*) |
| Tidal Refining Co., Drumright | 11,000 | 10,000 | 10,000 |
| Transcontinental Oil Co., Boynton | 2,500 | 1,700 | 1,800 |
| Transcontinental Oil Co., Bristow | 5,000 | 2,500 | 4,000 |
| Western Oil Corp., Beckett | 2,000 | 1,500 | 1,500 |
| White Oak Refining Co., Allen | 6,000 | 5,200 | 5,150 |
| Wilcox Oil & Gas Co., Bristow | 5,000 | 2,000 | 2,000 |
| Wirt Franklin Petroleum Corp., Ardmore | 4,000 | 1,950 | 2,833 |
| Yale Oil Corp., Yale | 1,500 | 900 | 900 |
| Total | 308,800 | 200,750 | 205,333 |

*Shut down.

**REFINERY OPERATIONS IN NORTH CENTRAL TEXAS**

(Plants which have been in operation during the past year)

| Name and address— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| American Refining Properties, Wichita Falls | 6,000 | 1,500 | 3,000 |
| Archer Refining Co., Wichita Falls | 2,000 | 600 | 500 |
| Central Texas Refining Co., Angus | 4,000 | 2,000 | 1,500 |
| Central Texas Refining Co., Minerva | 2,000 | 900 | 800 |
| Continental Oil Co., Wichita Falls | 6,000 | 4,000 | 3,300 |
| Dale Oil & Refining Co., Electra | 4,000 | 3,800 | 3,850 |
| Empire Oil & Refining Co., Gainesville | 5,000 | 3,600 | 3,600 |
| Falls Refining Co., Wichita Falls | 2,000 | 1,000 | 1,000 |
| Gulf Refining Co., Fort Worth | 10,000 | 6,000 | 6,000 |
| Humble Oil & Refining Co., Breckenridge | 2,000 | 1,250 | 1,200 |
| Humble Oil & Refining Co., Chilton | 4,000 | 2,500 | 2,700 |
| Humble Oil & Refining Co., Neches | 5,000 | 3,000 | 3,000 |
| Superior Refining Co., Tiffin | 2,000 | (*) | (*) |
| Iowa Park Producing & Refining Co., Iowa Park | 2,500 | 1,300 | 1,400 |
| LaSalle Petroleum Co., Burkburnett (Noble) | 3,500 | 2,000 | 2,000 |
| Macmillan Petroleum Co., Isom | 8,000 | 6,500 | 5,300 |
| Magnolia Petroleum Co., Fort Worth | 12,000 | 4,700 | 3,300 |
| Magnolia Petroleum Co., Corsicana | 5,000 | 3,000 | 3,300 |
| Olney Oil & Refining Co., Olney | 2,000 | 1,500 | 900 |
| Oriental Oil Co., (Trinity) Dallas | 5,000 | 3,300 | 3,300 |
| Orient Petroleum Co., Wichita Falls | 2,500 | 1,500 | 1,500 |
| Panhandle Refining Co., Wichita Falls | 5,000 | 3,830 | 2,500 |
| Pampa Refining Co., Pampa | 4,000 | 2,700 | 2,500 |
| Phillips Petroleum Co., Isom | 10,000 | 9,000 | 9,000 |
| Primrose Refining Co., Wichita Falls | 2,500 | 1,200 | 1,200 |
| Tarrant Refining Co., Grand Prairie | 2,500 | 200 | 500 |
| Simms Oil Co., Dallas | 5,000 | 2,400 | 2,300 |
| Star Refining & Producing Co., Fort Worth | 1,800 | 750 | 750 |
| Taxman Refining Co., Wichita Falls | 2,500 | (*) | (*) |
| The Texas Company, Dallas | 16,000 | 16,000 | 16,000 |
| The Texas Company, Amarillo | 4,000 | 3,000 | 3,000 |
| Tidal Western Refining Co., Burkburnett | 3,000 | 2,000 | 2,000 |
| Texas Pacific Coal & Oil Co., Fort Worth | 3,000 | 2,000 | 2,340 |
| Transcontinental Oil Co., Fort Worth | 5,000 | 4,000 | 4,000 |
| Waggoner Refining Co., Electra | 3,400 | 2,500 | 2,500 |
| White Eagle Oil & Refining Co., Fort Worth | 6,000 | 1,500 | 1,500 |
| Total | 166,700 | 105,030 | 101,540 |

*Shut down.

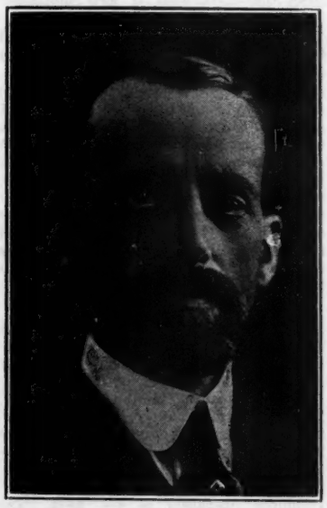
(Continued on Page 141)

# Much Accomplished at A. P. I. Meeting

## Pipe Line Coating Tests on Program for 1930. Meet Next Year in November. Three Divisions Will Facilitate Efforts

By Andrew M. Rowley

The tenth annual convention of the American Petroleum Institute held last week in Chicago established a record for attendance, accomplishments and general benefit to all who were present at the various group sessions and meetings which will be hard to excel. Yet, it seems to be the consensus of opinion that the creation of three main divisions of the Institute—producing, refining and marketing—will permit of a more intensive study of problems affecting each branch of the petroleum industry with a resultant speeding up of work designed to solve these problems. The new plan of conducting the work of the Institute through these three main divisions is expected to stimulate greater interest in the Institute on the part of oil men throughout the country; to permit a wider exchange of views; and to pave the way for more direct action regarding matters of special interest to each division.



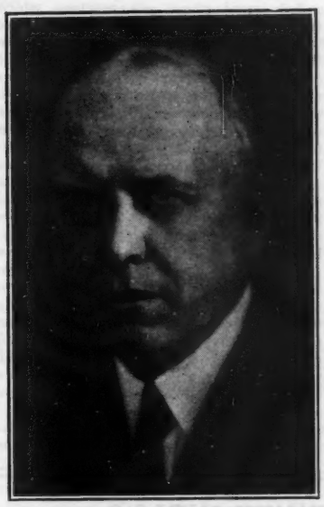
W. N. Davis

The executive committee of the Institute voted unanimously to hold the next annual convention at the Stevens Hotel in Chicago from November 10 to November 13, inclusive, next year. Decision to hold the meeting almost a month earlier met with hearty approbation upon the part of most of the oil men who have been attending the annual conventions in Chicago. Weather conditions probably will be more pleasant and it is expected many persons who were reluctant to make the trip to Chicago in December will attend the convention next year when it is held in November.

### Endorse Conservation

The re-election of E. B. Reeser, president of the Barnsdall Corp. as president of the Institute was a foregone conclusion. Not only the leading executives but the rank and file of the entire industry favored the re-election of Mr. Reeser in order that he might continue to carry on the great conservation work he so successfully managed during the past year. His re-election, without opposition, was probably the strongest endorsement of the conservation movement the industry could give. It was so interpreted and there will be no let-down whatever in efforts to hold crude oil production to market requirements. In addition, more intensive efforts will be made to bring refinery operations more nearly in line with consumption and market demands in order that there be no piling up of excess stocks of refined products, especially gasoline.

Other officers elected by the Board of Directors are: vice president, L. P. St. Clair, Independent Oil Producers Agency, Los Angeles, Cal.; vice president for production, W. N. Davis, Phillips Petroleum Co., Bartlesville, Okla.; vice president for refining, W. M. Irish, the Atlantic Refining Co., Philadelphia, Pa.; vice president for marketing, Henry M. Dawes, the Pure Oil Co., Chicago; executive vice president, W. R. Boyd, Jr., New York; treasurer, Amos L. Beaty, Transcontinental Oil Co., New York, and secretary and assistant treasurer, Lacey Walker, New York. Executive Committee: the president, vice presidents, treasurer, last retired president (E. W. Clark, Union Oil Co. of California, Los Angeles), and J. Howard Pew, Sun Oil Co., Philadelphia; R. C. Holmes, The Texas Company, New York; W. C. Teagle, Standard Oil Co. (New Jersey), New York; Axtell J. Byles, Tide Water Associated Oil Co., New York; F. A. Leovy, Gulf Production Co., Pittsburgh, Pa.; and W. S. Fitzpatrick, Prairie Oil & Gas Co., Independence, Kan. Membership Committee of the Board: Roy B. Jones, Panhandle Producing & Refining Co., Wichita Falls, Tex., chairman; Clark H. Kountz, Prairie Pipe Line Co., Independence, Kan.; W. C. McDuffie, Pacific Western Oil Co., Los Angeles; W. T. Holliday, Standard Oil Co. (Ohio), Cleveland; and Herbert L. Pratt, Standard Oil Co. of New York, New York.



W. M. Irish

Under the divisional plan of the Institute, Mr. Davis will be chairman of the producing division, Mr. Irish of the refining division, and Mr. Dawes of the marketing division.

### Swigart New Chairman

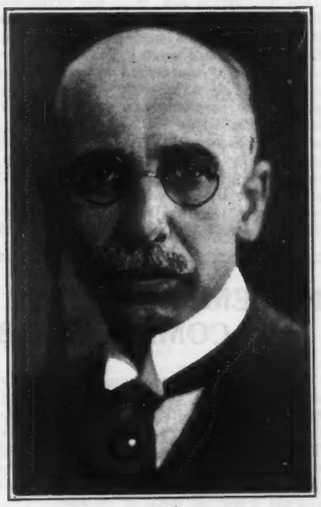
The Division of Development and Production Engineering elected the following officers for 1930: general chairman, T. E. Swigart, Shell Oil Co., Los Angeles, Calif.; general vice chairman, J. R. McWilliams, Skelly Oil Co., Tulsa; chairman of the national committee on drilling pracitce, E. G. Gaylord, Standard Oil Co., San Francisco, Calif.; chairman of the national committee on production practice, W. W. Scott, Humble Oil & Refining Co., Houston, Tex.; and chairman of the national program committee, F. W. Lake, Union Oil Co. of California, Los Angeles, Calif.

Under the plan for three main divisions of the Institute, there will not be a division of development and production engineering but the work being done by this division will be included in the activities of the Producing Division of the Institute. The same applies to the present Division of Standardization.

### Consider Corrosion

Corrosion was an important subject widely discussed during the recent convention. One of the largest attended of the group sessions was that of last Thursday afternoon devoted to the subject, "Corrosion of Equipment." Many interesting points were developed during the discussion at this session of the paper on "Corrosion and Pipe Line Coverings" prepared and read by Charles Fitzgerald, superintendent of the Pure Oil Pipe Line Co. of Texas.

Closer co-operation between manufacturers and users of pipe line coatings was urged during this session both by representatives of the manufacturers and of companies using coatings for protection against corrosion. That the various manufacturers are making every effort to develop coatings which will meet the demands of the pipe line industry was generally admitted, Dr. Gordon N. Scott, associate at the Bureau of Standards for the American Petroleum Institute stating



Henry M. Dawes

he has visited the laboratories of many of the coating manufacturers and that these manufacturers are doing everything possible to solve the problem of soil stress, etc.

Dr. F. N. Speller of the National Tube Co., internationally known authority on metallurgy, indicated soil stress was one of the great problems involved in the matter of pipe line coatings and he stated a remedy might be found in providing some practical outside coating to protect the pipe coating from this soil stress.

It was evident from the discussion that many coatings now being supplied to the pipe line industry will protect against corrosion where soil stress does not break down the coating and force it from the pipe. In other words, one of the chief problems now to be solved, it seems, is to provide some method of combating soil stress.

A suggestion was made at the meeting that manufacturers of coatings form an association through which the users could co-operate to better advantage with the manufacturers and it is probable some definite action along this line may be taken in the near future. It was also indicated such an association might place an associate in the Bureau of Standards at Washington to work on problems confronting manufacturers and users of protective coatings.

T. E. Swigart

### Plan Work for 1930

An extensive program of tests on pipe line protection coatings is contemplated during 1930 by the United States Bureau of Standards. This program is to be sponsored by the American Petroleum Institute upon the recommendations of its Standing Committee on Production and Pipe Line Corrosion. A conference was held with representatives of coating manufacturers at which time the projected tests were fully considered and discussed. Many valuable suggestions were received at the conference and so far as possible

J. R. McWilliams

(Continued on Page 133)

# Frank Discussion at A. P. I. Meeting

## Refinery Technicians Present Varying Opinions Regarding New Developments of Interest to Plant Operators

By W. T. Ziegenhain

CHICAGO, Dec. 9.—Frankness marked the discussion which followed the many excellent papers presented before the refinery technology group during the American Petroleum Institute's meeting here and typifies the purpose of these meetings of arriving at the scientific truths in solving the many intricate problems brought before them.

The subject matter included the discussion of cracking, motor fuel characteristics, corrosion and gum in gasolines. Practically all of the papers on these subjects were published in The Oil and Gas Journal on December 5.

### Cracking

Cracking again held a central position in the general interest and may be accounted for principally by the prominence now being given to vapor phase cracking. Papers by A. L. Strout of the Standard Oil Co. of California, C. R. Wagner of the Pure Oil Co. and Louis de Florez presented some new and practical developments in cracking that were of special interest. In the discussion which followed these papers it was evident that some fundamental questions still exist regarding the distinction between vapor phase cracking and liquid vapor phase cracking, the phenomena of gas formation, the effect of temperature and pressure on the production of fuels of a higher antiknock rating, etc. Regarding the progress of gas formations, Dr. R. T. Haslan of the Standard Oil Development Co. asked the following question: "I am very much interested in Mr. Wagner's views regarding the way in which he stated, that gas is not a product of primary cracking, but a result of the decomposition of the gasoline. Some of the early investigators pointed out that as you increase the temperature of a chain hydrocarbon for cracking, the position of the break in the bond is near the end. If that is true it would tend to increase the formation of gas as the temperature is increased."

In answer to this question C. R. Wagner said: "We have no data on that point, but I would like to point out that all of the work that has been done in attempting to show the way in which the hydrocarbons break up at these high temperatures has been done with apparatus and time of reactions which make it almost impossible for you to get products of a primary reaction. For example, some of the experiments that have been recorded have shown the time up as high as 32 seconds at a temperature of 1,500° C., which is higher than the temperatures we have been using in our work. It would seem then, if we are getting almost no products of the primary reaction at 1½ seconds, it would be difficult, if not impossible, to get the products of primary reactions at 32 seconds time."

Doctor Haslan then stated that by cutting down the time of reaction to one-half second he had witnessed gas formation. In further discussing this question, Dr. W. G. Whitman of the Standard Oil Co. of Indiana said he would like to ask Mr. Wagner why it would not be possible to get this initial cracking at a lower temperature for the same given time.

Mr. Wagner replied: "You do not get the same quality of products if you go down very much lower than the temperature at which we are working."

Asking for a further explanation, Doctor Whitman inquired: "May that not be the result of getting the products of the initial cracking operation contaminated with those of the second cracking operation?" Mr. Wagner agreed this may be possible.

Dr. Walter Rittman, who has been identified with the development of vapor phase cracking for many years, then remarked:

"Apropos of Doctor Whitman's question and Mr. Wagner's answer, I think Mr. Wagner has hit upon a very important point. There seems to be a point in cracking below which you do not get the high antiknock products of vapor phase cracking as is generally known. I was particularly interested, Mr. Wagner, in your comment that at temperatures, say, between 1,050° F. and 1,150° F., your products are of about the same order. Then you might ask 'Why not carry out vapor pressure cracking at 980 or 990° F.'" In answering this question Doctor Rittman said: "Take the ordinary piece of commercial apparatus and operate it at, say, 1,030° F., you will get, let us say, a product which has a benzol equivalent of 40. The vapor phase product would have a benzol equivalent of 55 or 60. If you run that commercial apparatus at 980° F. you will get nothing like 60 per cent. That seems to answer Doctor Whitman's question. There seems to be a point after which you get these high antiknock products and below which you do not get them, but you do get a considerable gas loss."

**PRACTICAL QUESTIONS THOROUGHLY DEBATED**

A general discussion followed each of the several technical papers presented before the refinery operators and technicians during the annual meeting of the American Petroleum Institute. Many questions which pertained to the principles of cracking, the solution of the gum question, the production of antiknock motor fuels, corrosion and other problems were impartially discussed in an effort to clarify the truths in their ultimate solution. The accompanying article gives a summary of some of these discussions.

### Egloff Disagrees

Dr. Gustav Egloff of the Universal Oil Products Co. and a qualified champion of liquid vapor phase cracking, humorously remarked that there was too close an agreement among the leaders in vapor phase cracking, and took exception to the statements previously made by stating:

"I am certain there is no sharp line of temperature demarcation where you say you can get a certain result as a function of 1,030 to 1,150° F. temperature, because in so-called liquid vapor phase cracking units, operating in this country, we are actually producing a motor fuel having a benzol equivalent of 55 per cent. The test method we used employes a Delco engine such as the Ethyl Gasoline Corp. operates. We have produced motor fuels in the so-called liquid phase gas reaction which match, and in a number of cases have been better, than Ethyl Gasolines as they are now marketed, and without going to a temperature of 935° F. as measured in the transfer tube going to the reaction chamber. Using one of the worst cracking stocks with which I am familiar from the standpoint of its antiknock value, namely a Pennsylvania gas oil between 38 and 40 gravity, at a temperature of 925° F. and pressure of 220 pounds, a month's operation shows the production to have a benzol equivalent of from 47 to 53 per cent and those values match the average Ethyl Gasoline marketed in a number of areas in the country, where we find, by using the same test motor, benzol equivalents of these Ethyl Gasolines range from 45 to 53 per cent. Also, a vapor phase product selling at a premium of 4 cents showed a benzol equivalent of 50 per cent.

"It isn't purely a question of temperature in cracking. There is a time factor which enters in which you must recognize. You can produce a high benzol equivalent motor fuel at low temperatures, not as speedily as at 1,050° F., because we know the speed of the reaction goes up as the temperature is increased, but when you say arbitrarily that you get a different product, so widely different as if it were a new child, at 1,030 to 1,050° F., I can hardly believe that. At least it does not come within my experience."

Doctor Rittman then replied: "We all know you can take Mirando crude and run it in a Holmes-Manley still, for instance, and get a product having a 70 to 80 per cent benzol equivalent. I agree with Doctor Egloff that there is no certain temperature at which you change from one to the other, but I am pretty sure that if he will take a given vapor phase pressure still and operate it for several days, using a Mid-Continent or a Pennsylvania stock, at 1,050° F. and then at 980 or 960° F., he will get rather different results with respect to the antiknock value."

### Refinery Results

Interest was centered in the results of the operation in the Pennsylvania refinery as outlined previously by Doctor Egloff and he was asked for more detailed information. In answer he said: "In the Pennsylvania cracking plant referred to they are producing from 65 to 70 per cent of finished 425 endpoint gasoline. On stream this is about 1,450 bbls. per day. The length of the run on a non-residuum operation is 4½ days. The coke and gas amount to approximately 15 per cent, 26 pounds per barrel of which is coke and 8 per cent gas."

Coming back to the question of temperatures at which the cracking reaction may be termed as occuring in the vapor phase, Doctor Rittman was asked by Doctor Faragher of the Universal Oil Products Co. whether there is a fixed temperature, say 1,030° F., below which cracking is not produced in the vapor phase. Doctor Rittman said: "Most emphatically, you may be in the vapor phase far below 1,030° F. You might make gasoline and be in the vapor phase at 700 to 800° F."

### Explains de Florez Still

Following a paper by Mr. de Florez, which described a new type of unit designed by the author and in commercial operation as published in The Oil and Gas Journal December 5, Dr. R. E. Wilson of the Standard Oil Co. of Indiana said this in favor of new development in furnace design; namely, the principle of utilizing radiant heat by specially-built tube sections:

"I cannot help but become slightly reminiscent when I look at that furnace design and recall how a few years ago we used to have about 5 per cent of our tubes exposed to radiant heat, and those were the tubes with which we had most of our trouble; and some of us were almost on the point of feeling that radiant heat was a very bad thing. As a result of evolution, with which many have helped, Mr. de Florez comes out with a furnace which is practically 100 per cent radiant heat and is getting runs of a length we would not have dreamed of a few years ago. I think the unit is rather remarkable for its flexibility, but I still feel that efficiency could be gained by the addition of a reaction chamber. As long as the products are heated to a high cracking temperature it seems that in most cases it would be advantageous and economical of time and money to conduct further cracking in a large unfired chamber

(Continued on Page 111)

## NOVEMBER SHOWS FEWER WELLS COMPLETED BUT MORE NEW WORK

Fewer wells were completed in November than in the previous month in the fields east of California, and the initial production was less by 42,346 bbls. There were 52 more dry holes and 41 more gas wells, indicating that only 1,942 new oil wells were completed as against 2,004 oil wells in October.

At the close of November 922 rigs were up and 4,103 wells were classified as drilling, a total of 5,025 operations, an increase of 100 over the record at the close of October, offset, however, by the fact that there were 52 fewer completions in November, which would make the net gain in new operations 48 rigs and wells drilling.

Following are the figures for November:

**SUMMARY OF ALL FIELDS**
**Wells Completed**

| Field— | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Eastern | 588 | 3,592 | 39 | 64 |
| Central Ohio | 145 | 1,491 | 36 | 67 |
| Lima | 21 | 462 | 5 | 2 |
| Indiana | 34 | 260 | 15 | 8 |
| Michigan | 32 | 4,093 | 13 | 0 |
| Illinois | 27 | 714 | 8 | 0 |
| Kentucky | 143 | 5,271 | 35 | 15 |
| Oklahoma | 297 | 107,444 | 97 | 46 |
| Kansas | 82 | 8,376 | 39 | 2 |
| Texas Panhandle | 55 | 17,279 | 10 | 12 |
| N. Central Texas | 406 | 20,729 | 212 | 14 |
| E. Central Texas | 14 | 690 | 11 | 0 |
| West Texas | 115 | 115,452 | 42 | 0 |
| Southwest Texas | 68 | 10,400 | 35 | 12 |
| East Texas | 6 | ..... | 1 | 5 |
| Gulf Coast | 178 | 58,516 | 67 | 12 |
| North Louisiana | 69 | 8,345 | 20 | 32 |
| Arkansas | 19 | 730 | 10 | 2 |
| Alabama | 1 | ..... | 1 | 0 |
| Wyoming | 19 | 5,480 | 7 | 2 |
| Montana | 28 | 344 | 11 | 6 |
| Colorado | 6 | ..... | 5 | 1 |
| New Mexico | 10 | 776 | 5 | 1 |
| Total November | 2,363 | 370,444 | 724 | 303 |
| Total October | 2,415 | 412,790 | 673 | 262 |
| Difference | 52 | 42,346 | 51 | 41 |

**Rigs and Wells Drilling**

| Field— | Rigs | Drlg. | Ttl. |
|---|---|---|---|
| Eastern | 136 | 508 | 644 |
| Central Ohio | 60 | 198 | 258 |
| Lima | 5 | 33 | 38 |
| Indiana | 5 | 41 | 46 |
| Michigan | 56 | 138 | 194 |
| Illinois | 1 | 50 | 51 |
| Kentucky | 13 | 166 | 179 |
| Tennessee | 2 | 12 | 14 |
| Alabama | 1 | 4 | 5 |
| Mississippi | 6 | 15 | 21 |
| Oklahoma | 130 | 888 | 1,018 |
| Kansas | 45 | 284 | 329 |
| Texas Panhandle | 23 | 123 | 146 |
| North Central Texas | 91 | 400 | 491 |
| East Central Texas | 4 | 25 | 29 |
| West Texas | 68 | 258 | 326 |
| Southwest Texas | 71 | 155 | 226 |
| East Texas | 2 | 17 | 19 |
| Gulf Coast | 40 | 202 | 242 |
| North Louisiana | 57 | 126 | 183 |
| Arkansas | 11 | 52 | 63 |
| Wyoming | 24 | 134 | 158 |
| Montana | 21 | 96 | 117 |
| Colorado | 19 | 75 | 94 |
| New Mexico | 28 | 77 | 105 |
| Utah | 3 | 26 | 29 |
| Total November | 922 | 4,103 | 5,025 |
| Total October | 918 | 4,007 | 4,925 |
| Difference | 4 | 96 | 100 |

# Bulk of Gasoline Now Sold Under Code

## Over 5,000 Signatures Reported at A.P.I. Meeting. Heated Discussions of Some Provisions. No Important Changes

By C. O. Willson

CHICAGO, Dec. 5.—The code of practices for marketing refined petroleum products—commonly known as the "Code of Ethics," which was first presented to the oil industry a year ago, in the annual meeting of the American Petroleum Institute which closed here today, again resisted the attacks of those who sought to make major changes in its provisions and interpretations.

Some of the provisions of the code were discussed at lengthy sessions of the Institute's board of directors and the opinions of representative major companies were so divergent that the continuance of the code was threatened. Finally, the spirit of compromise, which made possible the present code with its admitted perfections, ruled and it is hoped that the major differences will be ironed out so that all of the code's provisions will become more generally effective.

At the general meeting this morning, held under the auspices of the National Committee on Interpretation of the Code, reports were given by a number of state chairmen. If the reports of these states can be considered representative, at least 75 per cent of the gasoline now being sold in the United States is being marketed by companies and individuals who have signed the code. A wire from the Federal Trade Commission showed that over 5,000 signatures had been obtained. Numerically the number of signers probably represents less than 50 per cent of the total distributing concerns due to the fact that many of the smaller jobbers have not signed. With a large majority of the major companies in accord the bulk of the gallonage is now sold under the code.

### Suggest New Rules

On motion of Paul E. Hadlick, secretary of the Minnesota and North Dakota state jobber associations, resolutions were adopted seeking two new additional provisions for the code. The two provisions deal with rebates and enticement of employes as follows:

"The payment, or an allowance by a refiner, distributor, jobber and/or dealer of secret rebates and/or unearned refunds, credits or cash discounts, whether in the form of money or otherwise, is an unfair trade practice.

"It is an unfair trade practice for any refiner, distributor, jobber and/or wholesaler to entice any of the officers, agents, salesmen or employes of any competitor to violate their contracts of employment; and/or to entice away the officers, agents, salesmen or employes of any competitor in such numbers or under such circumstances as to constitute an appropriation of the good will of such competitors or of any property right or value."

It will be necessary for these suggested rules to receive the approval of the board of directors of the Institute and the Federal Trade Commission before they could become effective. Mr. Hadlick, in offering the resolutions, stated that several codes in other industries which had received the approval of the Federal Trade Commission, had similar provisions. It was thought by some that the suggested rule in regard to rebates was already adequately covered in other rules which are now effective in the petroleum industry.

### Board Resolutions

The discussions of the code at meetings of the board of directors, which are said to have been more heated than those concerned with any other matter, brought to their attention at this annual meeting, centered in the rules concerned with sign painting, lease and agency agreements and commercial discounts.

In regard to the painting of signs there was an agitation to change the interpretation of Rule 10 as issued by the National Committee on Interpretation on October 21 following a hearing in Tulsa earlier in the month. This interpretation as it applies to sign painting, is as follows:

"The restriction of painting for dealers to the companies' standard signs is understood to mean the customary standard signs of the various companies, with such border painting as may be necessary to give the standard sign proper display qualities; but this does not include the painting of garages, service stations or other buildings, or large wall signs or other unusual painting, although such painted matter may be the design or the company's standard sign or the company's colors. This is not intended to prohibit the painting of stations owned or leased by refiners, distributors, jobbers or wholesalers."

This interpretation for the present at least is suspended so far as the Pacific Coast states are concerned. It has been common practice in those states for some time to paint garages and other buildings where a company's products are distributed and it was thought to be impossible to drop this practice immediately.

There was considerable agitation to suspend the rule generally. A few companies have followed the Pacific Coast practice in Eastern and Middle Western areas and it was contended that the restrictions of Rule 10 should be abolished. The board, however, finally adopted a formal resolution declaring that Rule 10 should continue in effect except for the Pacific Coast states as interpreted by the interpretation committee.

The board also supported the present code rules and interpretations as they apply to commercial discounts. In regard to commercial discounts, most of the companies engaged in distributing gasoline and lubricating oils favor their abolishment. Such a motion carried at the Tulsa hearing in October by a large majority. Many companies, however, including some of the major distributors believe that the commercial discounts are a sound merchandizing practice and they object to some of the restrictions which have been placed on their use under the interpretations of Rule 17 as announced by the interpretation committee on October 21.

It was impossible at the meeting here to find any middle position to compromise these widely divergent views. H. M. Dawes, president of the Pure Oil Co., Chicago, was appointed chairman of a committee which he will select which will investigate the whole problem of commercial discounts and make recommendations to the board regarding any changes in the present code provisions.

### Lease and Agency Agreements

It developed in the board meetings and also in the open hearing here this morning that the lease and agency agreements as authorized by the code were being violated in new agreements which if not contrary to the letter of the rules were at least a violation of the spirit of the code. As the result of the discussion in the board meeting a resolution was adopted that a bona fide lease agreement must be for at least one year. The lessor is prohibited from cancelling the agreement during this period. The agreement must state definitely its terms and it must be filed. The fee owner of the lease must be a party to the agreement.

In regard to agency agreements it was held that the company concerned must definitely appoint someone as its agent. The company must retain ownership in the property. The agent must agree to carry out the policies of the company and the latter has control of operations in regard to prices.

It is hoped that with the new interpretations several of the subterfuge practices which have sprung up since the code became effective will stop. It was charged at the hearing today that some of the larger companies in certain areas were making special inducements in their lease and agency agreements which were a violation of the code's provisions. It was pointed out that this situation was responsible for the fact that many of the independent jobbing concerns had not signed the code.

### Making Progress

"We are very much pleased with the way the code is being accepted," Roy B. Jones, president of the Panhandle Producing & Refining Co., declared in opening the hearing this morning. Mr. Jones, who has been active in the development of the code and who is a member of the National Committee on Interpretation presided until the arrival of Col. H. T. Klein, of The Texas Company, who is chairman of the committee.

"We have made remarkable progress, considering the size of the job," Mr. Jones continued, "and most of those who are not living up to the code are doing so because they do not understand its provisions."

The progress reports made by several of the state chairmen following Mr. Jones' opening remarks reflected the fact that conditions are not uniform in all parts of the country. In several states the subcommittees have not been active and practically no organization work has been carried on. Most of the larger companies in these states as in all others, have signed the code but there has not been any organized effort to secure the signatures of the smaller distributors, many of whom are not familiar with the code.

Some of the best reports came from the Middle Western states which have used their state jobber associations as a nucleus to carry on the necessary organization work. Several of the associations have paid secretaries who have been devoting their entire time to securing the co-operation of all companies in making the code generally effective.

One of the most complete reports was made by W. A. Milne, secretary of the Ohio Petroleum Marketers Association. He reported that out of 650 eligible signers in that state 183 had actually signed the code. Included among the signers were practically all the major distributors in the state so that while the numerical representation in the state was small the bulk of the gallonage was being sold under the code. A total of 825,000,000 gallons of gasoline for the yearly period was represented in the signers of the code.

He said that the offers being made verbally by representatives of some of the major companies in connection with the lease and agency agreements were a disturbing factor in the state and were causing many independent jobbers to hold up their formal approval of the code.

In Minnesota, Mr. Hadlick said that 57 per cent of the jobbers with 64 per

(Continued on Page 74)

## PATIENCE REQUIRED IF OBJECTIVE IN CODE OF ETHICS IS REACHED

By H. M. Dawes
President, Pure Oil Co.*

The following would be my notes if I were to write a paper on the subject of the Code of Marketing Practices.

1. Nothing permanent is accomplished except through evolution. Violent change interferes with progress and is inevitably followed by a reaction which retards evoultion. If we attempt to revolutionize the marketing of petroleum products overnight we will not only fail in our objective, but we will slip back. Do not, therefore, be discouraged that our objective has not been reached, but rather take inspiration from the fact that every step we have taken is a forward step and we have nothing to retrace.

2. Be patient with the "majors." They have made progress. They have even got to the point where most of them admit that many of the marketing troubles of the industry are of their own making. Large bodies move slowly and in such rare cases as one man control of the destinies of a corporation he has to base his decisions as much on propaganda as fact. He has to thread his way through a fetid jungle by sound and not by sight. If you think this is easy shut your eyes and try to walk down State Street relying entirely upon what somebody tells you about the obstacles you have to avoid. You will be surprized how many people you bump into. Try to cultivate a little sympathy for the big fellow. He is not crooked and he is not stupid. He is probably quite as well aware as are you that there is money in the Golden Rule, properly applied, but he has to make his application in a thousand different places where you have one.

3. To the little independent and the little jobber I have only one word. Don't be so suspicious. If you think you find bad faith on the part of the big fellow and his representative is either a liar or a well intentioned fool, go direct to the big fellow himself. He will welcome you.

4. Go on the hypothesis that you are not making any sacrifice when you give up a practice which is bad for the industry.

5. Always remember that the industry which serves its public best prospers most. If, through increased efficiency and open dealing, economics are effected, the fruits thereof will be shared equally by the public and by the industry. It is not necessary to apologize, therefore, for this movement, and to do so is an indication of your lack of understanding of its fundamental impulse. Do not affect the cynical, and in a worldly wise way wink the other eye and say all we are after is higher prices. This attitude merely discloses your own stupidity and reflects on the industry.

6. Do not be secretive. The whole movement is dependent upon the principle of letting in light and air. A secret agreement to do a right thing is wrong and is ineffective. If you haven't a guilty conscience you need not pull the curtains down when you talk about your business. The marketing of petroleum products is not a game in which we are engaged to defeat our opponent, but it

(Continued on Page 142)

*Opening remarks at meeting to consider "Marketing Problems," 1929 annual meeting of American Petroleum Institute.

# To License Hydrogenation Process

## Standard Announces Will Be Offered at Earliest Practicable Time on Basis for Co-operation of Whole Industry

By A. E. Mockler
*New York Bureau, The Oil and Gas Journal*

NEW YORK, Dec. 9.—The hydrogenation process for petroleum refining controlled jointly by Standard Oil Co. of New Jersey, and the I. G. Farbenindustrie will be offered for license in the United States at the earliest practicable time and on a basis which will provide opportunity for co-operation of the industry at large in its further development, Standard Oil Co. of New Jersey will say in the forthcoming issue of "The Lamp."

The present status of the hydrogenation situation is comprehensively summarized by the company as follows:

**Company's Statement**

On November 23 announcements were made simultaneously in Germany and the United States of the completion of the negotiations between I. G. Farbenindustrie and the Standard Oil Co. of New Jersey relating to the hydrogenation process. The text of this statement was as follows:

1. The patents relating to hydrogenation of coal and oil of I. G. Farbenindustrie and Standard Oil Co. of New Jersey for the world outside of Germany will be taken over by a corporation which will be owned jointly by the parties. Standard will assume the management of this corporation.

2. A marketing outlet for the product of synthetic gasoline by the I. G. Farbenindustrie in Germany is provided on terms which safeguard the interests of the I. G. Farbenindustrie.

3. The existing close co-operation between the parties in research and development on new products and processes of mutual interest is enlarged and perpetuated.

This agreement follows a co-operative examination of the technical and commercial possibilities of the new processes in which the parties have engaged during the last three years in pursuance of a limited agreement reached in 1927. The agreement of 1927 had been in turn based upon nearly two years' study of the questions involved by both sides following completion of the first stages of the development in which the broad outline of the method had been discovered and demonstrated by I. G. Farbenindustrie.

The apparently slow progress of these technical investigations and negotiations is a reflection of the basic character of the development to which they relate, and of the labor, patience and skill which have been and will be required to supplement the petroleum refining industry with a new manufacturing technique which bears promise of offering a solution of a fundamental problem of the industry.

Crude oil received at refineries is separated into a large number of fractions having different characteristics and these fractions are then further purified and blended as required to obtain finished products. But this basic operation of refining fails to provide any balance between the two factors which in reality fix the economic status of the industry. Those factors are variations in quality of crude supply and variation in distribution of demand for the finished products.

**Classification of Crude**

Crude oil is obtained from natural deposits distributed widely throughout the world. The deposits differ in quality, that is, as to nature and proportions of the constituent hydrocarbons. Even in the same field different wells producing from the same horizon sometimes give noticeable variations in quality and almost universally it is the case that different horizons in the same field produce markedly different oils. For simplicity's sake these differing varieties of crude oil are roughly classified into grades. Sometimes the classification used is that of "light" and "heavy," sometimes as to sulphur content, that is crudes may be called "low sulphur crudes" or "high sulphur crudes" and sometimes on the basis of the dominant chemical nature of the heavy constituents of the crudes, for example, paraffin base, naphthenic base, asphaltic base or mixed base. The variety and inconsistency of these methods of classification is sufficient to indicate the range in characteristics of the raw materials of the petroleum industry. A further economic factor bearing on the same point is the location of the various fields. While there may be, statistically speaking, sufficient potential production of any desired grade of crude oil to meet the requirements of a particular refinery, it will seldom be possible to deliver this crude to the refinery in question at a reasonable cost as compared with the production of a less suitable grade from some more favorably situated field.

**Swing of Market**

The second major economic factor which has operated to enforce upon the petroleum industry a manufacturing technique broader than that of refining is the slow but irresistible swing of the market demand from one finished product towards another. At its inception the industry was able to find a solution of the problem of any manufacturing industry, that is a consuming outlet, by the simple expedient of investigating the field of the world's requirements for the products which could be separated from crude oils. Small but sufficient outlets for all important products were found to be available. But as the new industry settled down to its place it entered a second phase. One of the markets, that is, the demand for illuminating oil, began to grow out of all proportions to the remaining markets. The only possible economically sound answer to this problem was the conversion of natural products not inherently suited to the market in question into synthetic products suitable for that market. This solution was found in the method of cracking the heavier fractions of the available crude oils in such a way that a very large proportion of kerosene was obtained from the decomposition products. The recognition of the necessity for this supplement to refining practice, its adoption and perfection, were the foundation stones upon which the petroleum industry of the nineteenth century was built. Crude oils which by refining methods yielded only 20 to 30 per cent of kerosene were by application of the decomposition method of conversion made to yield from 50 to 70 per cent. The kerosene demand was met without serious overproduction of any other product.

**Conversion Method**

The third phase of the petroleum industry has followed the lines of the second. With the swing of the pendulum of demand away from kerosene toward gasoline, beginning in the early part of the present century, the refiner again had the problem of supplementing his existing technique by some conversion method which would permit of obtaining the percentage yields of finished products which the market now demanded, this percentage shifting from year to year more and more toward gasoline. Again the problem was met by further perfection of the decomposition method of conversion. The technique employed was radically different and far more difficult than that which had been followed for the production of kerosene, but the statistical result has been nearly as good. At the present time about one-third of the world's total demand for gasoline is met by a product which is manufactured rather than refined.

The petroleum industry is still in this phase of its economic history. Whether the decomposition method of converting heavier oils into gasoline will be able to meet the future requirements of the industry depends upon the three following factors:

**Future Requirements**

1. Future distribution of demand as among the various products of petroleum.

2. Amount, location and quality of future crude oil supplies.

3. Future improvement in the decomposition conversion method.

The third of these three controlling factors is not susceptible of any quantitative treatment. What would appear to be its inherent limitations are well understood and generally accepted, but the exact extent to which the method may be further improved and varied is necessarily a matter of conjecture. As to the first two factors, however, there are available definite quantitative indications of future trend. Of these the high spots would appear to be the following:

Production of heavy fuel oil had definitely passed its present economic limits as a petroleum product. Despite the maintenance throughout the past year of low price levels on fuel oil, the market would not absorb the production. Stocks of heavy fuel oil will show a material increase for the year. There is no indication of any coming increase in the heavy fuel outlet sufficient to match the estimated increase in demand for gasoline and other light fuel. No one can foresee the limits to which these latter markets may grow along their present lines of expansion. It seems now, however, that increase in heavy fuel consumption will be obtainable only by forcing the product into less and less favorable markets. A change in the prevailing character of the world's crude oil supplies might readily restore a balance but there are no prospects of obtaining any immediate help from this source, nor is it a happy situation for the industry

(Continued on Page 74)

## AMERICA'S GREATEST PRODUCING FIELD UNDERGOING REJUVENATION

By L. P. Stockman

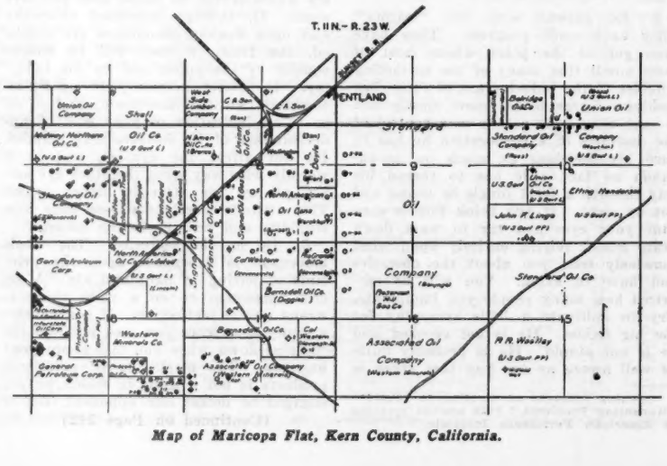
LOS ANGELES, Calif., Dec. 7.—Deep zone exploitation at Santa Fe Springs and resulting substantial production in that and other flush prolific fields has had a tendency to divert attention away from several other less active but nevertheless equally profitable areas in California. One of these subordinated districts is the Midway-Sunset Field of Kern County, which is at present producing 72,500 bbls. of crude oil daily with an additional 25,000 bbls. per day shut in. This field, one of the first highly productive areas opened up in California, has produced a total of 665,063,630 bbls. of crude since discovery and still has a lot of oil yet to be recovered. The nearest approach to this field in point of crude oil recovery is Long Beach with 376,456,627 bbls. to date, Coalinga with 312,199,395 bbls. and Santa Fe Springs with 251,532,242 bbls.

Midway-Sunset still retains the distinction of having yielded the largest flowing well ever finished in California up to the present time. This was the Union Oil Co.'s Lakeview gusher which blew in doing around 100,000 bbls. a day and produced about 10,000,000 bbls. of oil before the flow ceased. A number of other substantial producing wells were subsequently finished at Midway-Sunset but all of them were rather insignificant when compared with the original Lakeview. One of the most interesting features in connection with this remarkable well is the fact that other holes were put down all around the Lakeview gusher but with only varying success. Many of these were later abandoned but old Lakeview continued to produce on the beam for many years.

**Often in the Spotlight**

The Midway-Sunset Field has been in the spotlight off and on for a long time. About every so often some one brings in a new deep well or opens up a new productive area and precipitates additional drilling. These frequent occurrences are due to the fact that this field contains a number of major and minor structures and folds and also because of comparatively recent development of the Maricopa brown shale. Midway-Sunset is undergoing another one of its periodi-

(Continued on Page 112)




*Map of Maricopa Flat, Kern County, California.*

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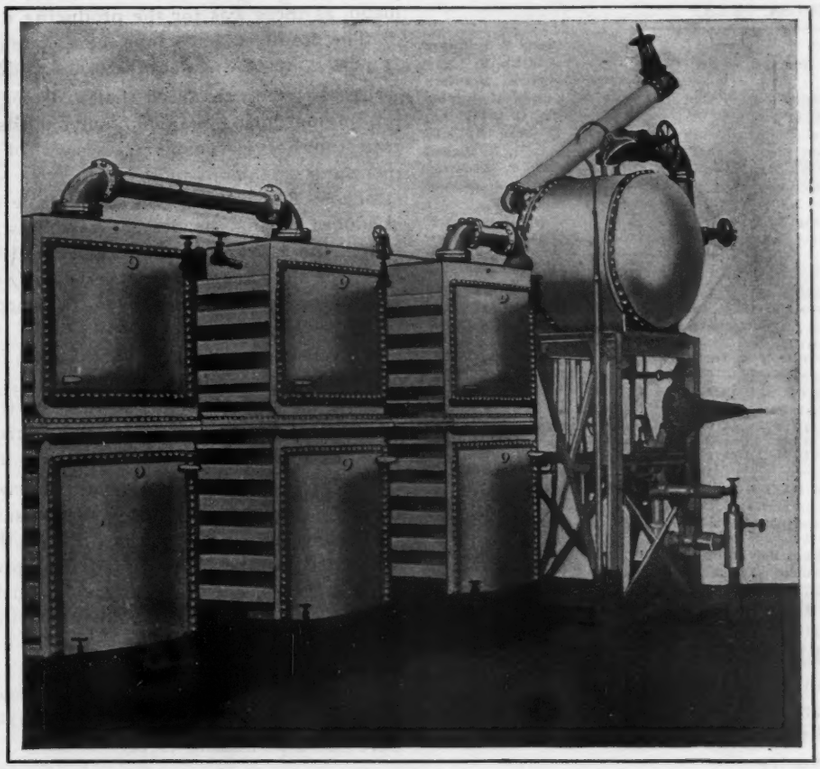

## SOUTHWESTERN ABSORPTION PLANT

DATA FROM PLANT OPERATIONS

**HEAT EXCHANGERS**

| RICH OIL | No. 1 | No. 2 | No. 3 |
|---|---|---|---|
| Temp. in, Deg. F | 96 | 145 | 200 |
| Temp. out, Deg. F | 146 | 201 | 282 |
| Pressure in, lbs. sq. in. | 80 | 73 | 66 |
| Pressure out, lbs. sq. in. | 71 | 66 | 61 |
| LEAN OIL | | | |
| Temp. in, Deg. F | 175 | 234 | 330 |
| Temp. out, Deg. F | 124 | 176 | 235 |
| Pressure in, lbs. sq. in. | 150 | 160 | 17 |
| Pressure out, lbs. sq. in. | 142 | 150 | 14 |
| Mean Temp. Diff °F | 29.0 | 30.0 | 43.0 |
| Heat Trans. Rate | 109.0 | 130.0 | 176.0 |

*or the B.T.U., per sq. ft., per hour, per degree mean temp. difference*

**ABSORPTION OIL PREHEATERS**

| RICH OIL | No. 1 | No. 2 |
|---|---|---|
| Temp. in, Deg. F | 278 | 279 |
| Temp. out, Deg. F | 365 | 366 |
| Pressure in, lbs. sq. in. | 60 | 61 |
| Pressure out, lbs. sq. in. | 44 | 45 |
| STEAM | | |
| Temp. in, Deg. F | 382 | 382 |
| Temp. out, Deg. F | 382 | 382 |
| Pressure in, lbs. sq. in. | 185 | 185 |
| Pressure out, lbs. sq. in. | 185 | 185 |
| Mean Temp. Diff °F | 48.0 | 48.0 |
| Heat Trans. Rate | 295.0 | 295.0 |

*or the B.T.U., per sq. ft., per hour, per degree mean temp. difference*

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PRODUCING REFINING ENGINEERING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle.


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Six months - - - - - - - - - - $3.00
One year (in United States) - - - $6.00
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## AN EMPHATIC ENDORSEMENT

The unanimous re-election of President E. B. Reeser at the annual meeting of the American Petroleum Institute in Chicago was an emphatic endorsement of the policy of conservation by the national organization of the industry.

The original selection of Mr. Reeser a year ago was in recognition of the prominent part he had taken in advancing the movement for conservation, backing with his personal activity the advice he had offered to the industry in the now historic open letter he wrote to The Oil and Gas Journal urging that "It Can Be Done."

That first election was tantamount to the industry saying, "Well, if it can be done, show us how."

And there was no question at the end of his first year as president of the Institute it had been shown very clearly.

So when it came to the election of officers last week and there was no other name mentioned it was not only a personal tribute to an energetic leader but a vigorous approval of the conservation policy which he had promoted and pushed to realization.

The Institute and the industry it represents are now definitely committed to that principle, not as a theory but as a practical policy. That is shown by the resolution adopted by the board of directors and read by Captain J. F. Lucey, representing the Institute, at the Washington conference called on behalf of President Hoover.

While "it is now possible to say that the supply of crude oil in the United States, by voluntary action on the part of individual producers, has been curtailed to approximate equilibrium with current refinery demand," the Institute resolution declares, "a condition of gasoline overproduction is recognized as existing and is promising to grow more serious and acute if the supply of this commodity is not promptly and substantially curtailed."

"Unless the refiners, through education and knowledge of the situation, restrict their production of gasoline to market requirements, the continued conversion of crude oil into gasoline at too rapid a rate would nullify the effects of the curtailment already accomplished in the supply of crude oil."

In other words the battle for conservation has been but half won by the curtailment of the overproduction of crude oil.

Stocks of crude and products are now 680,000,000 barrels, 70,000,000 barrels added this year.

Of that 70,000,000 barrels added to storage, heaped upon the already overburdening surplus, only 40,000,000 barrels were crude while 30,000,000 barrels were products and partly finished oils, approximately 8,000,000 barrels being gasoline.

This shows there is as much necessity for the manufacturing division to co-operate in curtailment, bringing supply down to demand, as there was for the producing division to limit production.

The producers have done their share and the Institute now plainly puts it up to the manufacturers to do their part.

It has been calculated that a 10 per cent reduction in gasoline production during the next four months is required to avoid going into the heavy consuming season of the coming year with a menacing surplus of motor fuel.

Those 8,000,000 barrels of gasoline more than were necessary, produced during the present year notwithstanding a wholly unexpected increase in consumption, should be a warning. If it had not been for the exceptional increase in consumption this year, which nobody could have anticipated, the surplus would have been much more.

It was a piece of undeserved luck for the manufacturing division which is not likely to be repeated.

The Institute directors warn that "the first quarter of 1930 will be a particularly critical period during which gasoline stocks threaten to mount to uneconomic and unsound levels."

The refiners are starting into the winter months with this excess of 8,000,000 barrels. Any sort of sane reasoning would suggest that manufacturing operations during the winter months should be scheduled to take account of that surplus.

Two years ago the refiners demonstrated their ability to deal with this problem. They held their winter operations down to the expected demand and entered the season of heavy consumption with a healthy condition.

The record shows that they were rewarded by a fairly profitable year due to this foresightedness, but the example does not seem to have had a permanent effect.

The necessity for prudent operations this winter is much greater than it was then, because the surplus is greater. The co-operation among the producers of crude oil avoiding further depression in the crude market offers the refiners no temptation from distress crude. They must know how thankful they should be for that unexpected increase in demand for gasoline this year which saved them from disaster.

They have the further advantage now of the weekly reports on refinery runs gathered by the Institute, serving as a chart for current operations.

In addition they will have the benefit of the reorganization of the Institute, giving the refinery division a definite organization where its difficulties can be threshed out.

The creation of the three divisions for the producing, refining and marketing branches of the industry is the first systematic organization of the Institute for practical work in which every member can and should take part.

These divisions will be thoroughly representative, offering an agency for conference on the direct problems of each division and the formulation of policies by the general Institute, the essential co-ordinating body for the entire industry.

This departmentalizing of the Institute is in no sense a decentralization; the unity of the industry in the Institute has been too laboriously achieved and is now recognized as an economic necessity.

What affects one division affects another—the resulting major problems are common to the whole industry.

Overproduction of crude is reflected in the refinery market; overproduction of gasoline reacts against the producer of crude. Abuses in the marketing end lead to conditions that rebound against both the producing and refining divisions.

The whole conservation movement, indispensable for the protection of the industry and the nation's petroleum supply, rests upon the continued co-operation of every unit in every division of the industry.

# *In the Higher Altitudes*

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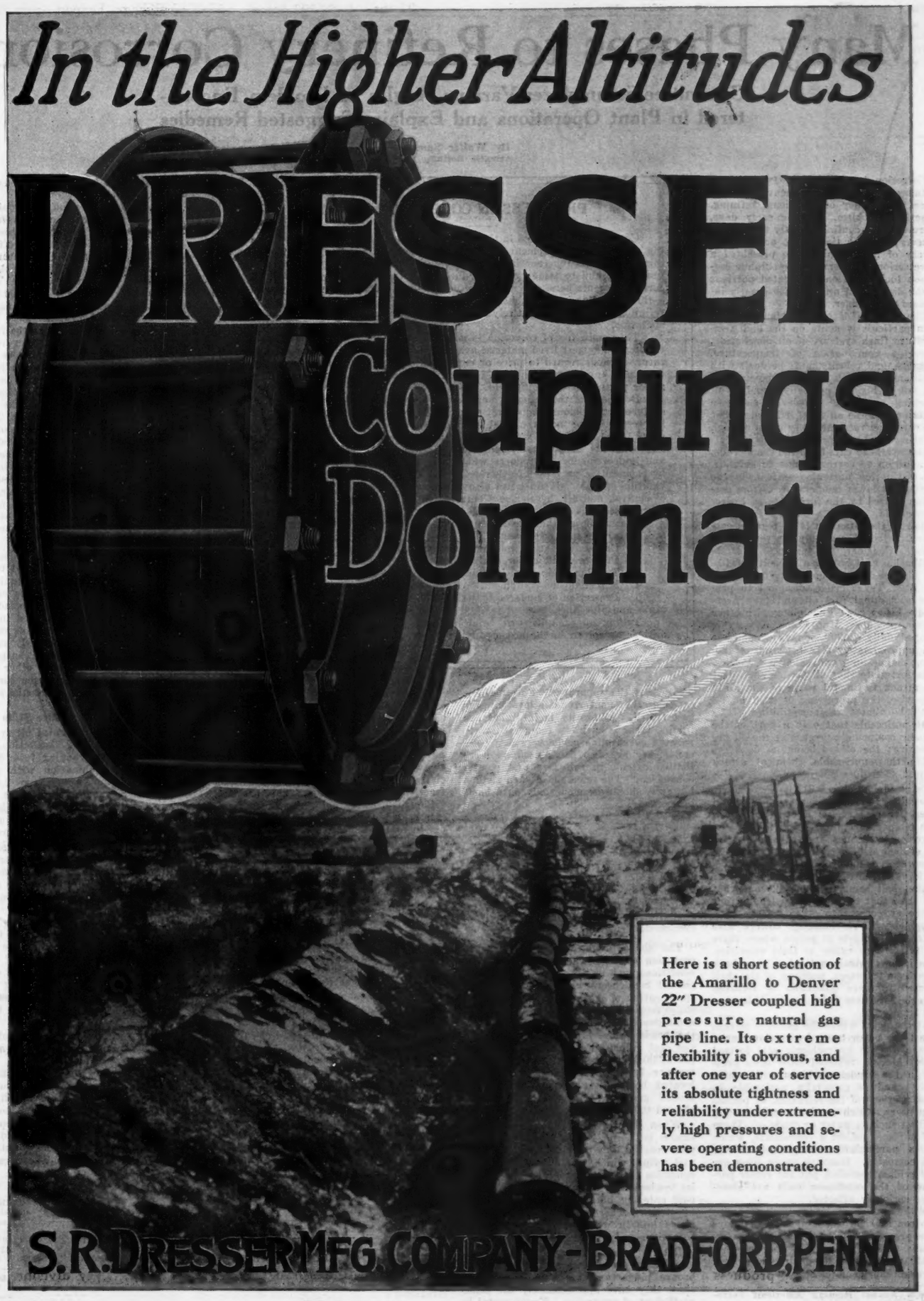

Here is a short section of the Amarillo to Denver 22" Dresser coupled high pressure natural gas pipe line. Its extreme flexibility is obvious, and after one year of service its absolute tightness and reliability under extremely high pressures and severe operating conditions has been demonstrated.

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# Many Phases to Refinery Corrosion

## Committee Summarizes Various Angles of Problem Encountered in Plant Operations and Explains Suggested Remedies

By Walter Samans
Atlantic Refining Co.*

Corrosion in the various types of oil refinery distillation equipment has been, since the infancy of petroleum refining, a serious problem. In the early days, corrosion was confined chiefly to the condensers; but, as time went on, the discovery of high sulphur oils presented a more serious problem, as the sulphur corrosion took place on the heated portions of the distillation units, which greatly increased the danger.

The problem of high sulphur oils has been particularly acute on the high temperature flash systems of oil distillation, where a combination of temperature, pressure, and velocity must be dealt with —although in such systems temperatures are not as high as normally found in oil cracking processes. However, as these units process the oil first, it is noted that the corrosion rates are very often as high as those found in pressure stills operating on overhead cuts from the same crude. In addition to corrosion due to sulphur, the distillation unit also suffers, in the portions at lower temperatures, from corrosion caused by the formation of hydrochloric acid.

Bad as the situation is as regards corrosion, it could certainly be very much worse. Consider, for instance, a crude distillation unit having a capacity of 10,000 bbls. a day and operating on a typical West Texas crude, designed to produce a residual fuel oil and take overhead a heavy gas oil cut along with other lighter products. Into such a unit is pumped daily 48,000 pounds of sulphur and approximately 2,500 pounds of sodium, magnesium, and calcium chlorides. It is fortunate that all the sulphur does not attack the metal parts of the still; otherwise, the processing of such an oil would be almost an impossibility. It is quite noticeable that only a part of the sulphur compounds present in the oil are corrosive; the others being no doubt so stable that noticeable chemical attack against steel does not occur.

Corrosion in pipe stills is particularly noticeable in tubes, return bends and plugs, where there is a combination of high temperature and high velocity. The corrosion continues from the outlet of the still at a decreased rate through the evaporator. Here the influence of velocity is again noted—the rate of corrosion of the shell being, in general, somewhat less than that of vapor lines leading out of the evaporator to other fractionating equipment. Fractionating towers also suffer, particularly at points where there are fairly high vapor or fluid velocities. This is particularly noticed in trap back lines from refluxers, portions of the shell exposed to large quantities of refluxed material, refluxer tubes and bubble caps and trays.

At the point where the gasoline stream comes off, a new type of corrosion starts. This is due to hydrochloric acid formed when chlorine, released from salts present in the crude, combines with water vapor; and is especially noticeable in those portions of the refluxers, or partial condensers, which receive a cold cooling medium such as water or crude oil. These cold surfaces collect a condensate, which causes particularly heavy hydrochloric acid corrosion. Gasoline vapor lines are very seldom corroded, but the cooler portions of the condenser coils are sometimes seriously affected.

In the case of sulphur corrosion, chromium-iron and chromium-nickel-iron alloys have proved themselves to be highly resistant. These alloys, however, are not highly resistant to the hydrochloric acid corrosion such as exists in the cooler portions of the apparatus. For these locations, the nonferrous alloys appear best suited. Admiralty metal tubes are finding favor in such low temperature apparatus as gasoline condensers and coolers. They are also being used, to more limited extent, in refluxers and partial condensers. The selection of such metals, however, should be made only on a basis of economy.

| | Per Cent Loss in Weight in 6 Months |
|---|---|
| Cast iron | 0.11 |
| Wrought iron | 0.55 |
| Mild steel | 1.35 |
| Commercially pure nickel | 0.72 |
| Commercially pure chrome | 0.00 |
| Commercially pure cobalt | 0.78 |
| Commercially pure zinc | 1.80 |
| Commercially pure copper | 11.29 |
| Commercially pure aluminum | 0.18 |
| Commercially pure tin | 0.37 |

The above tabulation gives results of corrosion tests on various metals under conditions such as found in the reflux of partial condensers used to control the specification of a gasoline stream, where the corrosion is due to both sulphur and acids due to the presence of chlorides in the crude. The crude contained 0.273 per cent sulphur and 35 pounds of salts per 1,000 bbls., or 25 gallons of salt water per 1,000 bbls. The samples were located below the refluxer which controlled gasoline. The gasoline stream showed 0.065 per cent sulphur.

When interpreting these results, it should be borne in mind that the samples reached the temperature of vapors and reflux, which was about 400° F., a condition that does not prevail in the inlet headers and tubes of refluxers, where cold entering liquids cause condensation of steam. Therefore, the bulk of the above loss in weight is due to sulphur corrosion.

Return bend plugs made of Krupp metal have proved superior to aluminum bronze plugs, and are equally efficient since they have approximately the same coefficient of expansion. Krupp metal is being used successfully for small parts such as thermocouple wells, seats and discs of valves, pump valves and pump rods, and other minor parts.

A method which at present is almost universally adopted to resist corrosion is the use of extra heavy metal parts, especially in tubes, return bends, vapor lines, fractionating towers, etc. This practice, although probably not the most economical, has, nevertheless, enabled the refinery to continue operations even under the worst conditions.

Various types of paints, including aluminum, have been tried; but none has shown very much promise. An experiment has been carried out on the use of the Shoop metal spray process; but on account of the high cost and the difficulties of preparing the surface for receiving the coating, and the liability of cracking and scaling, its value is questionable. The process is recommended only for further experimentation at this time.

Of the above methods of combating hydrochloric acid corrosion, ammonia has proved the most effective. Installations are known where, with the use of caustic, it was necessary to renew the bottom collecting headers, gasoline coolers, and rundown lines in from three to six months; but when ammonia was substituted for the caustic, the life of these parts has been increased to over a year. The quantity of ammonia required varies from 3 pounds to 25 pounds per 1,000 bbls. of crude being processed; and, at the prevailing price, is considered an economic procedure, in view of the decreased maintenance and increased time on stream of the equipment.

For sulphur corrosion, ammonia has not proved itself to be at all effective; and, after several trials, has been discontinued. Caustic is fairly effective, but makes cleaning of evaporators and fractionating towers a difficult task; and, furthermore, is attended with the danger of producing brittleness of steel parts. To date, the best results have been obtained by using hydrated lime. Under the most severe conditions at the furnace outlet, the corrosion has been reduced from 0.136 inch penetration per 1,000 hours to 0.225 inch penetration for the same period. This reduction is based on the injection of 0.25 pound of lime per barrel of crude oil charged, the crude being from the Winkler (West Texas) Field, containing 1.02 per cent sulphur. These corrosion rates were established by test samples. Results of using lime show that the life of tubes in the hottest part of the furnace has been increased from three months to well over a year, their ultimate life not being known at this time. Maintenance on this still has been greatly reduced as shown by the table below.

This section of the report has dealt primarily with problems as related to pipe stills, since corrosion in these units has been most severe. In the case of shell stills, similar methods can be adopted. Lime or caustic can be injected into the charging lines of stills operating on high sulphur crudes; and, if properly agitated with steam, can be held in suspension and made to flow to the other stills. Condenser and heat exchanger corrosion can be combated with ammonia neutralizer.

### Corrosion in Pressure Stills

In this class are included all types of stills used for cracking distillation. The high temperatures, ranging from 600 to 1,000° F., in combination with a corresponding pressure range from 2,000 to 800 pounds per square inch, serve to accelerate chemical reactions, both by reason of nascent corrosive agents, and by the phenomenon termed fatigue corrosion.

The capital expenditures for this type of plant are consequently higher than for any other refinery equipment; and it is all important that it operate during greatest possible percentage of time, and with ample safety at all times.

This report will not attempt to enumerate the details of this phase of the industry's corrosion problem, as the paper entitled "Pressure Still Corrosion" by W. G. Whitman and J. K. Roberts of the Standard Oil Co. of Indiana, may be referred to for a most complete resume of the corrosion problems pertaining to this subject.

However, a few items pertaining to this class of equipment, not mentioned in that paper, are as follows:

(a) The use of high chromium steel cast bars and hangers for tube supports in furnaces: These contain usually over 20 per cent chromium, 8 to 12 per cent nickel, if any; they must not embrittle in use, and must carry their load without scaling or appreciable loss of strength at 2,000 to 2,200° F. These castings

(Continued on Page 140)

### PROGRESS IN CORROSION STUDY

Corrosion is evidenced in the rapid destruction of materials used in making up operating equipment, and is due to chemical reaction resulting from corrosive agents inherent in the raw crudes which must be transported and processed; and to some extent, is due to the treating materials used. The corrosive agents persist to a varying degree—and with some chemical change —throughout the storage, handling and distillation, and other processes of refining, until they are entirely eliminated in the final treating and finishing operation.

The combating of corrosion is not the comparatively simple problem of finding the longest lived material available for each particular part of apparatus, without regard to price or consideration of the life of other parts of the same apparatus; or, what is most important, the obsolescence of the major portion of the equipment.

Decisions of the refinery management—operating, process research, and engineering divisions—must rest on carefully weighed considerations, involving respectively: money available; likelihood of continued or increased demand for products, i.e., stability of the market; changes in source of crude; improvements in processes, indicated by partly completed research work; and improvements in products which may be required by the customer or by competitive progress of other refiners. The selection of the proper combination of materials must rest also on operating convenience with flexibility of control, and all the elements entering into the numerous details of engineering design, construction and maintenance.

In considering the corrosion problems of petroleum refining, the subject falls naturally into five groups, viz.:

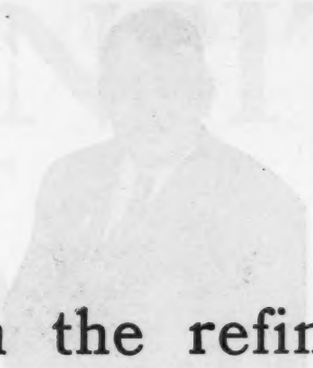
1. Crude distillation and fractionating equipment.
2. Pressure still major equipment.
3. Tubular equipment, including condensers, coolers and exchangers.
4. Miscellaneous equipment.
5. Protection of surfaces by paints and metal coatings, particularly on tanks and pipe lines.

Taking up each in turn, brief abstracts from the reports of subcommittees are given in the accompanying paper.

**MAINTENANCE COST OF 10,000-BBL. TUBE STILL**

| Repairs for 1,000,000 bbls. throughput due to corrosion | Cost per barrel—dollars: Actual maintenance | Cost of lime | Cost ammonia | Total | Estimated maintenance cost per year (340 days) |
|---|---|---|---|---|---|
| $11,000 | 1.1 | | | 1.1 | $37,400 |
| 1,900 | 0.19 | 0.171 | 0.0425 | 0.4035 | 6,460 |
| Saving maintenance only | | | | | 30,940 |
| Less cost neutralizers | | | | | 6,780 |
| Net saving per year | | | | | 24,160 |

*1929 Annual meeting American Petroleum Institute.



What can the refiner do nowadays with his straight run gasoline?

He can blend with it a generous proportion of Dubbs cracked gasoline

The more Dubbs cracked gasoline, the better will be the finished product, and the bigger will be the refiner's profits

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

### THE OIL MAN'S CALENDAR

December 11-13 — Omaha, Neb., convention, Nebraska Independent Oil Men's Association, Paxton Hotel.

December 12-13 — Washington, D. C., ninth annual meeting, Highway Research Board.

December 16-17 — Washington, D. C., American Pharmaceutical Manufacturers Association, Hotel Washington.

January 4-11—New York, National Automobile Show, Grand Central Palace.

January 11-18 — Atlantic City, N. J., convention, American Roadbuilders Association.

January 21-24 — Detroit, Mich., annual meeting, Society of Automotive Engineers.

January 25-February 1—Chicago, National Automobile Show, Coliseum.

February 1921—Columbus, Ohio, Ohio Petroleum Marketers Association, Deshler-Warwick Hotel.

March 19-21 — Detroit, Mich., convention, Michiga nOil Men's Association, Statler Hotel.

March 20-22—New Orleans, La., American Association of Petroleum Geologists.

April 7-12 — Chicago, annual meeting, American Oil Burner Associations, Stevens Hotel.

November 10-13—Chicago, Stevens Hotel. Eleventh annual meeting American Petroleum Institute.

## PRORATION EXTENDED IN McPHERSON COUNTY

By voluntary action on the part of oil operators in McPherson County, Kansas, the proration of crude oil runs will be extended to February 15. All producing wells will be limited to 50 bbls. per day production during the proration period, excepting the two discovery wells in the Voshell Pool and the north Voshell Pool in Township 21-3w, which are now exercising their discovery rights, at the conclusion of which they will join the other wells in a 50-bbl. per day production.

Twenty-five operators met in Tulsa Tuesday of this week and confirmed the proration movement and there will be another meeting in the Wichita Club on January 10, at which time it is expected that a proposal to extend the proration further into the year will be ratified. J. Garfield Buel of the Bu Vi Bar Oil Co. presided at Tuesday's session. Tom C. Johnson of Wichita was continued as umpire of the McPherson Field.

At a meeting held in Tulsa, December 9, operators considered the extension of the time limit for starting additional wells in the Ritz area, in McPherson County, Kansas. It was decided no new wells would be started until after January 1, 1930, and that another meeting would be held in Tulsa, December 31, to consider both the time limit for starting additional wells and the extension of the proration program.

In connection with the drilling it was decided that due to the fact that some test wells were being drilled in the general area, to the south, but not in the field proper, as now considered, any company represented would be entitled to drill protection offsets if it so desired.

The McPherson Oil & Gas Co. will be asked to defer starting a well for which it has made a location in the SW, Section 12-20-2w, until after the first of next year.

The pool is under 50 per cent curtailment. It has an estimated potential of 3,046 bbls. per day. No new wells have been started since the proration agreement was put into effect and only one well is now drilling, that being the Shell Petroleum Corp.'s No. 1 Miller, C SW SE, Section 1-20-2w.

## GEORGE TURNBULL, OIL EDITOR, DIES SUDDENLY

George F. Turnbull

OIL CITY, Pa., Dec. 9.—George F. Turnbull, managing editor of the Oil City Derrick and recognized as an authority on the development of the oil industry, died today of an abscess of the brain which resulted in paralysis. He was stricken last Thursday. Mr. Turnbull was born 39 years ago in Bainbridge, N. Y., a son of the late Prof. J. F. Turnbull, principal of the Oil City high school. He graduated from Colgate University, Hamilton, N. Y., and studied medicine in Western Reserve University till his health failed.

Abandoning medicine, Mr. Turnbull took up newspaper work, serving on the Cleveland Plain Dealer and other newspapers in Ohio and Michigan. He had been with The Oil City Derrick 15 years. He leaves his wife and three sons.

## CONTINENTAL BUYS BU VI BAR INTEREST

The Bu Vi Bar Petroleum Corp., which owned a one-tenth interest in a group of leases and producing properties in the Valley Center Pool, Sedgwick County, Kansas, in partnership with the Continental Oil Co. and the Gypsy Oil Co. has sold its interest to the Continental Oil Co., which will give the latter company 60 per cent and the Gypsy Oil Co. 40 per cent ownership in the properties. The potential production of the properties involved in the transaction is about 22,000 bbls. a day. The Continental, Gypsy and Bu Vi Bar companies opened the Valley Center Pool in August, 1928. The pool is under 50 per cent proration.

## HURLEY'S APPOINTMENT GENERALLY APPROVED

WASHINGTON, D. C., Dec. 7.—The elevation of Col. Patrick Jay Hurley from Assistant Secretary of War to the head of the War Department, by President Herbert Hoover is being met with much approval among Senators, Representatives, army men, and others from all sections of the country.

As Secretary of War, Colonel Hurley will be a member of the Federal Oil Conservation Board and his wide experience as attorney and otherwise with many phases of the oil industry will place him in a position of special importance in the conduct of the work of that Board.

### EARLY CONSTRUCTION EXPECTED

Recent developments indicate early action may be expected looking towards construction of the natural gas line from the Texas Panhandle to Chicago. This line will be the largest pipe line project ever built. It will be approximately 950 miles long and is expected to be at least 24 inches in diameter. Companies interested in the project are expected to make a statement within the near future giving further details regarding plans for the line.

# High Spots in Field News

**MICHIGAN**

Mount Pleasant crude cut from $1.70 to $1.50 a barrel.

**EAST CENTRAL TEXAS**

Second producer in Van Pool, Van Zandt County, better than first.

**NORTH LOUISIANA**

Zwolle district, Louisiana, has completion 12 miles from former big producer.

**SOUTHWEST TEXAS**

Darst Creek has 27 tests under way. Major companies reach proration agreement.

**NORTH TEXAS**

Three good wells completed in Gray County where curtailment is to be continued.

**KANSAS**

Good showing northwest of Wellington and extension in Ellis County.
Voshell Pool and Ritz Pool, McPherson County, to be curtailed.

**WEST TEXAS**

Andrews County wildcat may open another field of major importance in Permian Basin.
Air lift being used in Taylor-Link Pool.

**ROCKY MOUNTAIN AREA**

Limits of Hobbs Pool, New Mexico, thought reached.
New test in Southern Colorado.
Oregon Basin, Wyoming, increasing activity.

**CALIFORNIA**

Three new wells showing aggregate initial daily production of 7,825 bbls. finished in Elwood Field.
Santa Fe Springs deep wells hold up output.
Drilling at Santa Fe Springs and Kettleman Hills likely to bring crisis.

**GULF COAST**

Big Creek has 9,000-bbl. completion. Two good producers on new Lost Creek Dome. Wildcat at Genoa, Harris County. Salt dome prospect in Matagorda County.
Production at new Sheeks Dome, prospect in western Liberty County, extended.

**OKLAHOMA**

Oklahoma City Field on first anniversary has potential production of 275,000 bbls. from 41 wells.
I.T.I.O. company's No. 2 Fortson-Farley made 42,584 bbls. first 24 hours.
Prairie Oil & Gas Co. and others' No. 1 Sudik, Cleveland County, is at 7,595 feet, deepest drilling test in State at this time.

## Late Fields

### CALIFORNIA

LOS ANGELES, Calif., Dec. 10.—Three new wells showing an aggregate initial daily production of 7,825 bbls. were finished in the Elwood Field early this week. Barnsdall's No. 10 Bell came in flowing 2,575 bbls. daily from 3,889 feet. Elwood Exploration Co., a subsidiary of the Honolulu Consolidated Oil Co., brought in well No. 1 on tideland permit No. 90, doing 2,750 bbls. per day from 3,559 feet. The Seaward Oil Co. finished well No. 1 on Mahoney tideland drilling permit No. 91, doing 2,500 bbls. daily from 3,542 feet.

### NORTH TEXAS

FORT WORTH, Tex., Dec. 10.—In Young County, E. R. Riggs' No. 1 Keeter, semiwildcat located NW cor., Section 150, T.E.&L. Survey, 6 miles south of Olney, encountered an oil show at 859-64 feet and pumped 150 bbls. first 12 hours. In Archer County, F. P. Cullum and others' No. 3 Falls County fee, located Lot 9, Falls County School Land, encountered red saturated lime at 1,111-31 feet and hard lime at 1,131-32 feet and had an initial production of 51 bbls. first 14 hours and 76 bbls. first 24 hours.

### MICHIGAN

MUSKEGON, Mich., Dec. 10.—Two new Dundee wells completed in the Muskegon Field added about 400 bbls. of oil and 1,500,000 feet of gas daily in their initial flow. L. E. Kennedy's No. 5 Charles I. Giles, NE SE Section 6-10-16, Muskegon Township, made 287.5 bbls. and an estimated initial of 500,000 feet of gas. The Central Gas & Oil Co.'s No. 3 John Joldersma, NE SW Section 8-10-16, Muskegon Township, had an initial flow of about 1,000,000 feet of gas and 150 bbls. of oil.

### OKLAHOMA

The 24-hour gauge of the Oklahoma City Pool ending at 7 a.m. December 10 was 58,318 bbls. from the class "B" wells, 13 in number.

Several new wells were completed in the Oklahoma City Pool during the last 24 hours. Indian Territory Illuminating

(Continued on Page 146)

## A.P.I. WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks—for the week ending December 7 follows:

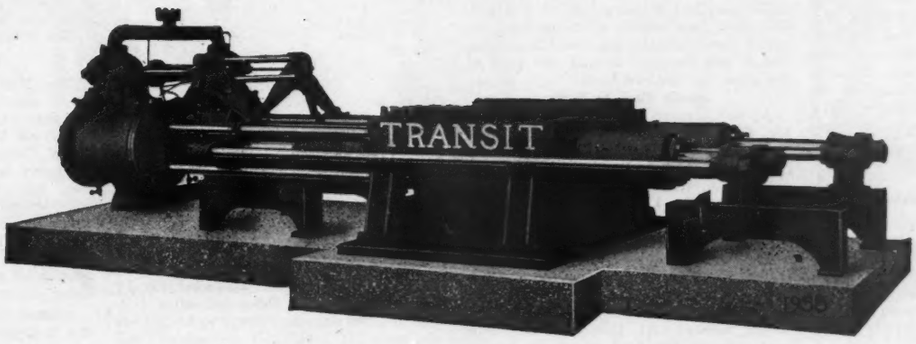
| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| East Coast | 100.0 | 3,124,600 | 4,926,000 | 8,255,000 |
| Appalachian | 91.2 | 547,800 | 1,038,000 | 819,000 |
| Indiana, Illinois, Kentucky | 98.6 | 1,776,300 | 4,331,000 | 3,714,000 |
| Oklahoma, Kansas, Missouri | 88.6 | 1,974,600 | 2,876,000 | 3,624,000 |
| Texas | 90.3 | 3,563,400 | 5,371,000 | 13,709,000 |
| Louisiana and Arkansas | 95.1 | 1,356,700 | 1,880,000 | 4,683,000 |
| Rocky Mountain | 92.9 | 388,600 | 1,802,000 | 990,000 |
| California | 99.3 | 4,282,900 | 14,377,000 | 109,111,000 |
| Total United States | 95.2 | 17,014,900 | 37,301,000 | 144,905,000 |
| Texas Gulf Coast | 99.4 | 2,794,300 | 5,047,000 | 10,675,000 |
| Louisiana Gulf Coast | 100.0 | 977,600 | 1,644,000 | 3,928,000 |

(1) Per cent refinery capacity represented. (2) Crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.

*Order*

# TRANSIT HOT OIL PUMPS

*Now*




Right now we have the engineering talent and manufacturing facilities available to give you the best of service, and you will get your pumping equipment in plenty of time for installation before the Spring rush of the refining business.

Last Winter we worked day and night to keep up with the orders for TRANSIT Hot Oil PUMPS, but even then some good refiners had to content themselves with other makes of pumps.

## Descriptions of TRANSIT Hot Oil Pumps on request

Agents

FRICK-REID SUPPLY CORPORATION
Tulsa, Okla., or any store.

REPUBLIC SUPPLY COMPANY
of California
Los Angeles, California

E. L. WILSON HARDWARE CO.
Beaumont, Texas.

## NATIONAL TRANSIT
## Pump & Machine Co.
Oil City, Pa.

DISTRICT OFFICES

NEW YORK PHILADELPHIA PITTSBURGH
CLEVELAND HOUSTON TULSA LOS ANGELES

Agents

F. C. RICHMOND MACHINERY CO.
Salt Lake City, Utah.

REEVES & SKINNER MACHINERY CO.
St. Louis, Mo.

# 36,000-Bbl. Well in Okla. City Pool

## Field on Its First Anniversary Had Potential Production of 275,000 Bbls. From 41 Wells. Big Wells Shut In

By W. A. Spinney
*Staff Correspondent, Oklahoma Fields*

The Oklahoma City Pool which has been supplying large wells almost every week for the last few months is again in the limelight with another sensational gusher. It is the second largest well ever completed in the State. The well is owned by the Indian Territory Illuminating Oil Co. and Foster Petroleum Co. and is No. 2 Fortson-Farley, NE cor., Section 24-11-3w. The first 24 hours' production gauged 36,055 bbls. from the Arbuckle lime at a total depth of 6,525 feet. The well has been shut in for the proration period.

The Oklahoma City Pool produced 99,215 bbls. from 20 Class A and 2 Class B wells on the gauge for 24 hours ending at 7 a. m., on December 7, and lacked only a few thousand barrels of reaching the peak of production for that field. Two Class B wells were included due to a misunderstanding. These two wells will be shut in for an extra 24 hours to offset this.

### First Anniversary Production

On the first anniversary of the Oklahoma City Field, Tuesday, December 4, it had a potential production estimated at 275,000 bbls. from 41 wells. Three wells were added to this number later in the week, one of which was the 36,000-bbl. initial producer already mentioned.

### Shut In Wells

The following is the initial production of the wells completely shut in at the Oklahoma City Pool:

| Company and farm— | Bbls. |
|---|---|
| I. T. I. O., No. 2 G. Button | 15,983 |
| Coline, No. 3 Olds | 12,192 |
| I. T. I. O., No. 1 Thomas Fuzzell | 42,557 |
| Mid-Kansas, No. 1 Browning | 11,575 |
| I. T. I. O., No. 1 Trosper | 19,722 |
| Coline, No. 2 Olds | 4,689 |
| Mid-Kansas, No. 4 Fortson | 3,242 |
| Mid-Kansas, No. 5 Fortson | 6,256 |
| Sinclair, No. 2 Kinter | 7,565 |
| Mid-Kansas, No. 1 Mollman | 1,500 |
| Sinclair, No. 1 School Land | 6,635 |
| I. T. I. O., No. 2 Fortson | 36,055 |
| Shell, No. 4 Petty | 965 |
| Shell, No. 5 Petty | 165 |
| Sinclair, No. 5 Stamper | 1,750 |
| Sinclair, No. 6 Stamper | 340 |
| Total | 171,191 |

The possibilities of the field at the close of its first year were altogether a matter of guesswork. That it is one of the greatest fields yet discovered in the United States is beyond question. In its first year it developed the largest and next to the largest high grade oil wells in American oil history so far as first 24-hour production is concerned. The average initial production of its first 44 oil wells has been 7,800 bbls., and unlike the wells in Pecos County, Texas, the gauge was for a full 24 hours, and not for one hour.

The present-day pipe line facilities in the field could not take care of 40 per cent of its potential production and the pipe lines and loading rack facilities if used to their capacity could take care of about 60 per cent of the possible production as of December 4.

The pipe lines completed on the first anniversary of the field and their daily capacity were as follows:

| | Bbls. |
|---|---|
| Empire P. L. Co., 8-in. | 35,000 |
| Sinclair P. L. Co., 8-in. | 16,000 |
| Shell P. L. Corp., 6-in. | 12,000 |
| Prairie P. L. Co., 8-in. | 25,000 |
| Oklahoma P. L. Co., 8-in. | 20,000 |
| Total | 108,000 |
| Loading rack | 58,000 |
| Grand total | 166,000 |

The loading rack capacity is maximum capacity dependent upon good switching facilities and an adequate supply of tank cars. It might be regarded as an emergency outlet. At present it is said that little if any oil is going out of the field in tank cars.

There are 157 operations in the field including wildcat tests.

The total recovery of the field up to December 4 had been 6,724,850 bbls. The oil has come from three horizons, most of it from the Arbuckle limestone. The detrital zone, a sand above the Arbuckle, has been responsible for a considerable portion of the production and is expected to produce a large share of the ultimate output of the field. The third zone is the Tonkawa series around 4,000 feet which has had showings of oil and gas. The field has shown a tremendous capacity for producing gas and the production is not confined to any one part of the thus far defined area.

### South End Is Busy

At the present time the south end of the field is getting the big play. Sinclair Oil & Gas Co.'s two new wells pioneered by finding sand production in No. 2 Kinter, SW cor. SE, Section 30-11-2w, and No. 1 School Land, NE cor., Section 36-11-3w. These tests extended the field a half mile southerly.

It is estimated that approximately 5,000 acres have been proven for oil production in the field, which means that 500 wells could be drilled on supposedly inside acreage. At this time only the east side of the pool seems to be defined. Shell Petroleum Corp.'s No. 3 Petty, NE cor., Section 30-11-2w, found water in the Arbuckle lime, and the offset north, owned by the Prairie Oil & Gas Co., in SE cor., Section 19-11-2w, is showing only a small quantity of oil. Both of these tests are apparent failures and may be plugged back to the shallower horizons.

### Production on Anniversary

The average daily production of the Oklahoma City Pool for the week ending December 4 was 66,819 bbls., which is an increase of 2,365 bbls. daily over the previous week. The gauges by companies and leases were as follows:

| Company and lease— | Wells | Bbls. |
|---|---|---|
| Coline: | | |
| Olds | 3 | 3,719 |
| Cromwell: | | |
| Trosper Park | 1 | 3,618 |
| I. T. I. O.: | | |
| B. Anderson | 1 | 638 |
| A. Bodine | 1 | 2,639 |
| S. Bodine | 2 | 1,127 |
| Button | 2 | 10,156 |
| Fortson-Farley | 1 | 278 |
| Fuzzell | 1 | 6,706 |
| Henning | 1 | 534 |
| Johnson | 1 | 2,995 |
| E. Joyce | 1 | 263 |
| Fee | 1 | 643 |
| Trosper | 2 | 419 |
| Mid-Kansas: | | |
| Fortson | 5 | 5,366 |
| Mollman | 1 | 211 |
| Trosper | 1 | 244 |
| Prairie: | | |
| Hiddleston | 3 | 1,839 |
| Hall & Briscoe: | | |
| Childs | 1 | 11,202 |
| Shell: | | |
| Petty | 2 | 2,249 |
| Sinclair: | | |
| Stamper | 3 | 1,026 |
| Kinter | 2 | 220 |
| Slick: | | |
| Glidden | 2 | 5,807 |
| Wirt Franklin | 1 | 4,920 |
| Total | 39 | 66,819 |

During the past week Sinclair Oil & Gas Co.'s No. 5 Stamper, NE cor. SE NW Section 30-11-2w, found a hole full of oil, but not enough gas to make the well flow. The well was bailed for 12 hours, making 125 bbls., and after failing to flow was shut down to be put on the gast lift, making it the second well in the field to use the gas lift. The total depth is 6,650 feet. No. 1 Stamper on the same lease was the first well to use the gas lift method. The production of No. 5 Stamper was 340 bbls. of oil and 500 bbls. of water, after being put on the gas lift, in 14 hours.

Coline Oil Co.'s No. 1 Clauer, NE cor. SE Section 25-11-3w, has been plugged back from 5,365 feet to 1,000 feet, and a new hole started from that depth.

Prairie Oil & Gas Co. and others' No. 1 Sudik, C NE NE Section 8-10-2w, Cleveland County, was drilling at 7,575 feet, making a bailer of water every four hours.

Magnolia Petroleum Co.'s No. 1 Noble, NW cor. SW SW Section 30-12-2w, Oklahoma County, was drilling at 6,720 feet, with nothing showing.

Tom Slick Oil Co.'s No. 1 Martin, NW cor. Section 13-13-1w, near Jones, Oklahoma County, was drilling at 6,487 feet, in sand, the top of which was found at 6,445 feet. There had been no oil or gas showing.

Indian Territory Illuminating Oil Co.'s No. 1 Wheeler, SW cor. NW SE, Section 13-11-3w, Oklahoma City Pool, blew in over the week end making between 40,000,000 and 50,000,000 feet of gas, from a total depth of 6,279 feet. The gas was later killed by mudding. It will be drilled deeper into the Arbuckle lime.

### Wildcat Locations

The Mid-Kansas Oil & Gas Co. has made another wildcat location east of Oklahoma City Field for its No. 1 Trosper, C SE NE SE Section 24-12-2w, Oklahoma County, south and west of the discovery well in that area, which has been averaging 250 bbls. daily. Several other locations may be announced later, probably north and east of the discovery well. Mid-Kansas Oil & Gas Co. owns 10,500 acres in this block, with the exception of a few scattered leases held by other major oil companies.

Indian Territory Illuminating Oil Co.'s No. 1 S. Bodine, NW cor. Section 30-11-2w, which has been producing oil and water for some time, went dead the middle of last week, after attempting to agitate with no results. It will be put on the gas lift, making it the third well in the field to use the gas lift method. It is producing from a total depth of 6,626 feet. Prairie Oil & Gas Co. and others' No. 3 Hiddleston, SW cor. NW SE Section 19-11-2w, was opened up after the proration period and made 3,995 bbls. of oil in nine hours.

### Greater Seminole Area

Seminole production in the week ending December 4 was increased almost 10,000 bbls. daily over the previous week, nearly every pool showing some increase. Some companies let the production of oil on the leases accumulate until the last half of the month before starting curtailment.

The East Earlsboro Pool had four new wells last week which helped increase its production 8,800 bbls. daily. Gypsy Oil Co.'s No. 9 Payne, SE cor. SW SE, Section 18-9-6, was the largest well completed in the pool. It made 2,040 bbls. the first 24 hours from the Wilcox sand at 4,241-63 feet. Same company's No. 10 Payne, SE cor., Section 19-9-6, Seminole County, made 605 bbls. from Wilcox sand at 4,218-35 feet after a 10-quart shot. The Burke-Greis Oil Co.'s No. 2 Fixico, SW cor., Section 17-9-6, had the Wilcox sand at 4,214-35 feet, where it made 1,515 bbls. after a 10-quart shot. Carter Oil Co.'s No. 2 Wrightsman, NE cor., Section 19-9-6, made 1,925 bbls. in 24 hours from the Wilcox and at 4,206-14 feet. This is the second well completed on the lease which was recently purchased from C. J. Wrightsman for a consideration of $1,000,000.

Three tests in the field found water in the Wilcox sand last week. Carter Oil Co.'s No. 1 Powell, NW cor. SE SW, Section 17-9-6; Minnehoma Oil Co.'s No. 2 Noe, SW cor. SE NW, Section 17-9-6, and Prairie Oil & Gas Co.'s No. 4 Calkins, SE cor. NW SW, Section 17-9-6. Several other wells were completed

(Continued on Page 72)

## WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

### NORTHERN OKLAHOMA

#### ALFALFA COUNTY

Company, farm and location— Remarks:

Smith Bros.' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w ..... Shut down 1,232 ft.

J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w.. Drlg. 4,650 ft.

#### BECKHAM COUNTY

Kay and others' No. 1 Martin, C E half E half NW Sec. 32-8-24w ..... Shut down 2,056 ft.

Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w ..... Shut down 2,402 ft.

Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w ..... Shut down 1,617 ft.

#### BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w ..... Spudded and shut down.

Washoma Oil Co. and others' No. 1 Phillips, C NW SW Sec. 12-19-10w ..... Shut down 2,936 ft.

#### CADDO COUNTY

Abernathy & Brown's No. 1 Horton, SE cor. Sec. 8-6-13w. Shut down 535 ft.

W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.

#### CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW Sec. 20-6-1 ..... Rig.

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w ..... Shut down 3,130 ft.

Phillips Pet. and T. B. Slick's No. 1 Sudick, NE cor. NE Sec. 8-10-2w ..... Drlg. 7,525 ft.

#### COAL COUNTY

W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e .... Shut down 1,285 ft.

#### COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW Sec 3-3-9w ... Rig.

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w.. Shut down 4,055 ft.

#### CREEK COUNTY

Carter Oil Co. et al's No. 1 Clinton, SW NW Sec. 12-15-9.. Drlg. 2,615 ft.

#### GARFIELD COUNTY

Continental and Barnsdall's No. 1 Brown, CNL SW Sec. 10-20-4w ..... Drlg. 1,545 ft.

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w ..... Fishing 5,566 ft.

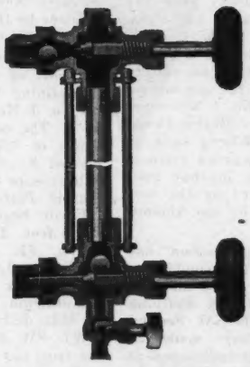
#### GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w... Spudded and shut down.

J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w ..... Rig.

(Continued on Page 82)

# The LEADERSHIP of PENBERTHY PRODUCTS



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## PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886 — DETROIT — CANADIAN PLANT WINDSOR, ONT.

# Wildcats Feature Kansas Field News

## Good Showing Northwest of Wellington and an Extension Well in Ellis County Are Important Discoveries of Week

By W. A. Spinney
*Staff Correspondent, Kansas Fields*

An important wildcat test found oil in Sumner County, Kansas, and is flowing 15 bbls. of oil hourly, into the slush pit. It is Slick, Pryor & Lockhart and Darby Petroleum Co.'s No. 1 Peasel, NW cor., Section 33-31-1w, northwest of Wellington. Oil was found in the chat at 3,670-75 feet.

Phillips Petroleum Co.'s No. 1 Weigel, extends production in Ellis County 2 miles south. The well is located in the NE cor., Section 19-12-17w, Ellis County. It is producing from the Oswald limestone at 3,680-86 feet, and made 200 bbls. natural. This well may be shut in, in accordance with the recent curtailment plans in effect in this area. It includes several companies holding acreage in this wildcat area which have agreed not to drill additional wells until some time next spring.

### Producers Crowding Wichita

On the east edge of Wichita, Fisher & Lauck's No. 1 in Section 1-27-1, Sedgwick County, encountered a showing of oil at 2,927 feet. The formations in this test were found to be running about 35 feet higher than those in the producing well drilled by the same company three locations south. On account of a caving hole, 6-inch casing was landed at 2,730 feet. The well swabbed 71 bbls. of oil and 20 bbls. of water from a total depth of 2,740 feet. The test is located in the city's finest suburban residential section. The possibility of the pool extending into the east side of the city limits is giving the citizens serious consideration. Some express an opinion that the city may pass an ordinance to restrict drilling in the city limits, while others hope that wells may be limited one to each block. Since there are a number of small tracts on the edge of Wichita, the completion of a commercial well will result in a number of tests being drilled near the city line.

Burnett Oil & Gas Co.'s No. 1 Davidson, NW cor. SW, Section 27-26-1, Sedgwick County, is pulling casing to abandon. The test was drilled to a total depth of 3,505 feet. It is located just north of Wichita.

On the west side of Wichita, Davis and others' No. 1 Van Arsdale, SE cor. NW SE, Section 14-27-1w, was spudding.

T. C. Johnson's No. 1 Peachy, in Section 2-27-1w, the west offset to the discovery well a few miles west of Wichita, in Sedgwick County, found a hole full of water in the Viola lime at 2,414 feet, with only a small show of oil in the top. The Viola lime was 25 feet lower in this test than the same formation was in the discovery well. Some express an opinion that if production is found in this area it will be in a south and southeast direction from the discovery well. The structure from the core drilled data is one of the largest in the county. This test will be drilled to the Silicious lime and was drilling at 2,450 feet, December 4. A location east of the discovery well, the Shell Petroleum Corp.'s No. 1 Southwestern College, was drilling at 2,050 feet. The production of the discovery well owned by the Plains Oil Co. is 150 bbls. daily.

North of the Lygrisse Pool in Sedgwick County, the offsets to the Shell Petroleum Corp.'s Erdwein well, which extended the producing area in the pool, are due to be completed. The Shell Petroleum Corp.'s No. 1 Morris, SE cor., Section 10-26-2, was drilling at 2,870 feet. Same company's No. 2 Lygrisse, NE cor., Section 15-26-2, was making 620 bbls. of oil and 30 bbls. of water daily from chat at 2,870-72 feet. Same company's No. 3 Fisher, SW cor. SE SE, Section 15-26-2, is drilling to the Wilcox sand, after a fishing job at 3,135 feet. This test offsets the same company's No. 1 Hamant, which is producing from the Wilcox sand.

### Voshell Pool's Fifth Well

The Voshell Pool in McPherson County has its fifth well when McBride, Inc.'s No. 2, SE cor. NE NE, Section 9-21-3w, filled up with oil from the Wilcox sand at 3,305-10 feet. The new well is a quarter mile south of the discovery, formerly owned by Ted Washabaugh and others. It swabbed and flowed 1,768 bbls. the first 24 hours.

Mid-Kansas Oil & Gas Co.'s No. 1 Voshell, NE cor. NW NE, Section 9-21-3w, McPherson County, was drilled deeper into the Wilcox sand. It made one flow of 42 bbls. and is standing full of oil. The top of the Wilcox sand was found at 3,195 feet, and the total depth is 3,224 feet. It is the most westerly well completed in that area.

Under the new proration plans Slick, Pryor & Lockhart's No. 1 Grattan, in Section 34-20-3w, McPherson County, was drilling deeper at 3,105 feet. It had been pinched to 50 bbls. daily. This wildcat well is a 2-mile north extension to the Voshell Pool and is producing from chat at 3,103-05 feet. These operators are entitled to discovery rights and will be allowed to produce the well wide open for 35 days. Some estimate the well will produce 400 to 500 bbls. when drilled a few feet deeper.

Mid-Kansas Oil & Gas Co.'s No. 2 Larson, in Section 31-18-2w, McPherson County, in the old McPherson Pool, is apparently a failure in the chat at 3,005-20 feet. It made two flows. Later it swabbed 20 bbls. of oil and 1,600 bbls. of water was found in the hole after swabbing. It will be deepened to the Wilcox sand.

Helmerich & Payne announced a new location for No. 1 Koffman, NW cor. NE NW, Section 22-21-3w, McPherson County. It is located 1½ miles southeast of the present production in the Voshell Pool.

### Seeking Greenwich Extension

Another attempt to extend the Greenwich Townsite Pool will be made by Graham Brothers. A rig has been moved for a test, No. 1 Rapp, CNL NW NW, Section 22-26-2, Sedgwick County. It is located one location west of the test well recently drilled by Barnsdall Oil Co. in NE cor. NW NW of the same section. It was later abandoned on account of mechanical difficulties after showing oil. Barnsdall Oil Co. still retains an interest in the acreage and the test.

Mid-Kansas Oil & Gas Co.'s No. 1 Harris, in Section 20-31-6, Cowley County, is shut down at 1,640 feet with an estimated flow of 10,000,000 to 20,000,000 feet of gas. A highway near the well has been blocked until the crew could shut the well in. If the gas can be mudded off it will be drilled to deeper horizons in search of oil. Two offsets have been moved to test the gas sand.

Lario Oil & Gas Co.'s No. 1 Newcome, in Section 7-27-3, western Butler County, found water in the Wilcox sand at 2,938-72 feet. The test was an attempt to extend the production in that area which was recently opened by the new Wilcox sand well drilled by the Aladdin Petroleum Co.

Greenwood County's production has been kept down by companies completing wells in the Bartlesville sand and not shooting them. Empire Oil & Refining Co.'s No. 5 Hogatt, C SE NW Section 9-25-13, Greenwood County, made 25 bbls. naturally from Bartlesville sand at 1,518-47 feet, total depth 1,553 feet. In keeping with its policy to curtail production this well was not shot. Derby Oil Co.'s No. 1 Walter, NE cor. NW Section 21-22-13, Greenwood County, has been abandoned at a total depth of 1,940 feet. The top of the lime was found at 1,840 feet, with no sand.

### Sumner-Cowley Pools

E. W. Marland, Inc., has a failure at its No. 1 A. Moore, C S half SW Section 24-24-9, Greenwood County. A small showing of oil was found in sand at 2,120-29 feet. The test was abandoned at a total depth of 2,290 feet, with a showing of water.

Production of crude oil in the district, which includes eastern Sumner and western Cowley Counties was lower last week than for the seven previous days. The daily average for the week ending December 4 was 10,835 bbls. Production by fields was as follows: Churchill Pool, Sumner County, 5,324 bbls.; Oxford townsite, 3,341 bbls.; Rainbow Bend Pool and the silicious lime district, 1,395 bbls.; Carson-Waite Pool, 650 bbls.; Miller Pool, 125 bbls.

Washoma Oil Co.'s new well in the south end of the Churchill Pool, located in the NW cor. SE Section 35-31-2, Sumner County, is now producing 110 bbls. daily from the Stalnaker sand at 1,933-36 feet. New locations are expected to be made by the Washoma Oil Co. and the Shell Petroleum Corp. offsetting this test.

In the Padgett Pool, in the southeastern part of Sumner County, Derby Oil & Refining Corp. is plugging back on its No. 1 Norrish, NW cor. Section 35-34-2. The test found water at a total depth of 3,574 feet. Owners have cemented 8-inch casing at 2,771 feet, and will attempt to save the gas at this depth. Harold Petroleum Co.'s No. 3 Swartz, NE cor. Section 27-34-2, was drilling at 2,050 feet. Davis and others' No. 1 McEwen, SE cor. Section 33-34-2, was drilling at 1,000 feet.

Griffin & Bell have a new well in Chautauqua County, which is producing 30 bbls. daily. The well is No. 6 Oliver, CWL SW Section 1-32-10. Oil is coming from pay at 1,635-63 feet. Before the well was pumped oil rose in the hole 1,000 feet.

The new wildcat well in Elk County, southwest of Severy, the Clark Oil Co. and others' No. 1 Sloan, in Section 9-29-9, pumped 120 bbls. the first 24 hours from the Wilcox sand at 2,640-42 feet. The well is 6 miles from the nearest production. Winemiller and others' No. 2 Mullendort, SW cor. NW SW Section 3-30-9, Elk County, has been abandoned at 2,364 feet, after finding the lime at 2,334 feet.

### Butler County

Sinclair Oil & Gas Co.'s No. 1 Johnson, NE cor., Section 16-26-3, is dry and abandoned at 3,318 feet. Empire Oil & Refining Co.'s No. 89 Koogler, NE cor. SW NE, Section 19-26-5, has been completed for 30 bbls. in sand 2,557-2,627 feet. Aladdin Petroleum Co.'s No. 1 Chance, SE cor., Section 14-27-3, is a dry hole at 3,045 feet. Empire Oil & Refining Co.'s No. 4 Hutchinson "C," NE cor. SE NW, Section 34-27-5, has been completed for 100 bbls. in sand 2,718-47 feet. Mohawk Oil Co.'s No. 2 McLean, SE cor. NE NW, Section 8-27-6, has been abandoned at 3,148 feet.

### Chase County

Steinbuckel and others' No. 1 Stevenson, NE cor. SW, Section 4-20-6, is spudding. Empire Oil & Refining Co. is building the rig for No. 1 Newman, SE cor. NE, Section 24-20-9.

### Chautauqua County

Griffin & Bell's No. 6 Oliver, CWL SE, Section 1-32-10, has been completed for 30 bbls. in sand 1,635-63 feet.

### Coffey County

Cross and others moved the rig in for No. 1 Fessenden, SW cor. NE, Section 33-22-14. Selby Oil & Gas Co.'s No. 1 Scott, NE cor. SW, Section 13-23-14, made 35 bbls. in sand 1,624-34 feet.

### Cowley County

Edenfield & Fair's No. 1 Booton, C W half NE, Section 17-34-4, is spudding.

### Douglas County

Pauline Oil & Gas Co.'s No. 1 Moore, SE cor. NE, Section 27-13-18, is dry and abandoned at 1,250 feet.

### Greenwood County

Simmons & Amerada Petroleum Corp.'s No. 1 Ellis "B," NW cor. NE NW, Sec-

(Continued on Page 108)

## WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

**BARBER COUNTY**

| Company, farm and location— | Remarks: |
|---|---|
| Skelly Oil Co.'s No. 1 Temple Ranch, Sec. 13-34-15w | Shut down 4,410 ft. |
| Robertson et al's No. 1 Powell, SE cor. SE Sec. 11-32-10w | Total depth 3,650 ft.; 5,000,000 ft. gas. |

**BARTON COUNTY**

| | |
|---|---|
| Prairie's No. 1 Davidson, NW SE Sec. 4-16-11w | Rig on ground. |
| Allison & Fitzwilliams' No. 1 Brodie, NE cor. Sec. 19-16-12w | Shut down 2,950 ft. |
| Slick et al's No. 1 Sweeney, SW NE Sec. 23-17-11w | Shut down 1,285 ft. |
| Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w | Shut down 3,948 ft. |

**BUTLER COUNTY**

| | |
|---|---|
| Lario O. & G. Co.'s No. 1 Hill, SW SE Sec. 1-27-4 | Drlg. 2,300 ft. |
| Lario O. & G. Co.'s No. 1 Miller, NE SE NE Sec. 36-26-3 | Drlg. 2,100 ft. |
| Martin et al's No. 1 Flanigan, C SW SE SW Sec. 29-27-3 | Drlg. 750 ft. |
| Sinclair Oil & Gas' No. 1 Johnson, NE cor. Sec. 16-26-3 | Drlg. 3,285-3,318 ft.; water; abandoned. |
| Stroub & Dutton's No. 1 Kirby, SE SW Sec. 12-28-3 | Drlg. 1,715 ft. |
| Valley Osage's No. 1 Sirs, SE cor. Sec. 34-23-3 | Shut down 2,600 ft. |

**CHASE COUNTY**

| | |
|---|---|
| Steinbuckel et al's No. 1 Stephenson, NE SW Sec. 4-20-6 | Spudding. |
| Steinbuckel et al's No. 1 Cook, SE cor. Sec. 31-19-8 | Spudding. |
| Empire's No. 1 Newman, SE NE Sec. 24-20-9 | Rig. |
| E. W. Marland, Inc.'s No. 1 Altemus, SE NE Sec. 33-18-6 | Drlg. 1,100 ft. |

**CLAY COUNTY**

| | |
|---|---|
| Chrisler et al's No. 1 Tivier, SW cor. Sec. 19-8-3 | Shut down 50 ft. |
| Derby Oil Co.'s No. 1 Meimueller, C NW SW Sec. 9-10-3e | Drlg. 2,855 ft. |
| Skow Bros.' No. 1 Strud, SW SE Sec. 16-9-4 | Shut down 2,510 ft. |

**COWLEY COUNTY**

| | |
|---|---|
| Fine et al's No. 1 Brown, SE cor. Sec. 8-32-4 | Rig. |
| Prairie's No. 1 Leighty No. 1 Ball, SW SE Sec. 4-30-5 | Drlg. 1,367 ft. |
| A. M. Landon's No. 1 Wheeler, C SW NW SE Sec. 24-30-4 | Drlg. 2,735 ft. |
| Milton & Mead's No. 1 Tatum, SE cor. SW Sec. 11-31-6 | Drlg. 1,470 ft. |
| Roth & Farrout's No. 1 Thompson, NE SE Sec. 31-31-8 | Shut down 1,575 ft. |
| Shawver et al's No. 1 Oldham, NW SE Sec. 23-32-3 | Drlg. 2,745 ft. |

(Continued on Page 168)

# VEZ

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*Manufacturing Chemists*

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WINK, TEXAS
PAMPA, TEXAS
BENAVIDES, TEXAS
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*"Ask the Man Who Uses It."*

# Zwolle District, Louisiana, in Boom

## Completion 12 Miles From Former Big Producer Causes Excitement. Building Pipe Lines. New Work Completed

By D. H. Bancroft
*Staff Correspondent, Louisiana-Arkansas*

SHREVEPORT, La., Dec. 9.—By way of intensifying the interest and excitement concerning the Zwolle district of Sabine Parish, 70 miles south of Shreveport, that has prevailed since R. L. Gay, trustee's, No. 1-A Bowman-Hicks, Section 34-8-12, started doing its stuff 10 days ago, Gay's No. 5 Bowman-Hicks in Section 14-7-14, 12 miles west of the big well, blew off its connections and for a while ran wild estimated at anywhere from 1,000 to 2,000 bbls. daily, from 2,586 feet, in the chalk rock from which the big well is producing. It marks the southwest corner of a quarter section in which three other producers are located, all of which have increased production since completion. The first of the three previous wells was completed a year ago and has doubled and redoubled its initial 24-hour gauge; the second has almost caught up with it and the third, which started with the smallest initial, has outstripped them both.

When No. 1-A Bowman-Hicks was completed there was a great deal of skepticism concerning it. As this is written this skepticism has changed to a very marked enthusiasm and the Shreveport division seems destined to live again the days of Homer-Bull Bayou, El Dorado and Smackover. Everyone at all able to swing a deal is trying to get hold of acreage somewhere around the 1-A and acreage 5 and 6 miles away is moving rapidly, to say nothing of acreage closer in.

Of the latter there isn't much, and what there is of it is in small parcels of 20 acres up to 160's with prices ranging from $200 up. The biggest trade is that of the Ohio Oil Co. with the Bowman-Hicks Lumber Co. The trade has gone through but local offices of the Ohio have not received confirmation and were not able to afford any details as the trade was made through the Findlay, Ohio, headquarters. The impression prevails, however, that the Ohio got some of the choicest stuff around the well. It has been known that Bowman-Hicks was disposed to deal only in large parcels at a fair figure—in other words that it was not disposing of any of its leases to any except interests able and willing to proceed at once with development. The trade with the Ohio is understood to have been for $100,000 but terms, as well as description of the acreage transferred, are lacking.

### Other Companies Active

Meanwhile, Simms Oil Co., Amerada Petroleum Corp., Standard Oil Co., Gulf Refining Co., Magnolia Petroleum Co., and all the others have had land men in Zwolle and there is more than a sprinkling of Oklahoma and Texas operators' representatives in town trying to pick up the closest-in acreage they can find. There isn't much to be had as Gay's principal has 30,000 acres in two blocks scattered all around the well and the four producers in the Blue Lake district. In other words, anyone who wants to get in anywhere near the ground floor has got to "talk to papa"—meaning Walter E. Cook of Paterson, N. J., Fayette Gay of Zwolle, or the Bowman-Hicks Lumber Co. of Kansas City.

Some idea of the size and importance of the new well—No. 1-A Bowman-Hicks—may be gained from observing the quantity of oil in sight since the day it blew in—November 26. Ten 500-bbl. steel tanks are full of oil pumped from the hastily built ponds—made by damming ravines adjoining the location which, it is estimated, hold an additional 20,000 bbls. Standard Pipe Line Co., the day this is written, completed 8 miles of 4-inch line from the well to Noble, where it goes into the Oklahoma-Baton Rouge main line, and is starting construction of another line of 6-inch. Of earthen storage there is one pit 50 by 100 by 15 feet full, another of the same size about to slop over and a third of equal dimensions being completed. The completed pipe line is able to handle only 3,500 bbls. daily and the well, flowing through a quarter-inch concrete choke, is filling storage faster than the line can move it.

Aside from the discovery of what may prove to be a major pool for the Shreveport district there has arisen much attention to the lessons learned in the manner of handling and completing rotary drilled wells. It is evident that very good wells and even large wells could be passed up without noting any showing at

(Continued on Page 123)

## WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

**NORTH LOUISIANA**

**BOSSIER PARISH**

| Company, farm and location— | Remarks— |
|---|---|
| Corbett et als' No. 1 Murff, SE cor. NE, Sec. 18-17-11 | S.D. 990 ft. |
| Simon Goldman's No. 1 McFarlin, SE cor. SW, Sec. 7-19-13 | Cmtd. 10-in. 102 ft.; drlg. 176 ft. |
| Neil & Lanier's No. 1 Biedenharn, SE cor., Sec. 23-21-14 | W.O.S.R.; 980 ft. oil in hole; T.D. 998 ft.; arranging to re-test at 998 ft. |
| S. P. Lanier's No. 1 Le Rosen, 300 ft. S., 1,600 ft. W, NE cor. Sec. 26-21-14 | Derrick. |
| G. D. Nesbit's No. 1 Leonard, 1,900 ft. N, 957 ft. E, SW cor. Sec. 20-19-13 | Drlg. lime 2,530 ft. |
| Old River Oil Corp.'s No. 1 Byrd, 300 ft. E, 300 ft. S, NW cor., Sec. 14-19-14, formerly carried in Dixie district of Caddo Parish | Cmtd. 1 ft. sand; arringing drill stem test 2,446 ft. |
| Walker et als' No. 1 Antrim, NW cor. SE, Sec. 28-22-13 | Tested dry; W.O. 3,184 ft. |
| Woodmansee et als' No. 1 Bollinger, SE cor. NE, Sec. 9-22-11 | Dry and abd. 3,532 ft. |

**CADDO PARISH**

| | |
|---|---|
| Lide et als' No. 1 Levee Board, 200 ft. S, 200 ft. W, NE cor. Sec. 24-19-15 | S.D.; W.O. 2,475 ft. |
| I. N. Pharis, trustee's No. 1 Oden, NE cor. SE NE, Sec. 16-19-14 | S.D. 2,322 ft.; topped sand at 2,396 ft.; set 6⅝-in.; T.D. 2,409 ft. |
| Planters Oil Co.'s No. 1 Pittman, 200 ft. S, 200 ft. E, NW cor. NE, Sec. 23-19-14 | Deep sand test 6 ft. broken sand 2,502 ft.; dry show oil; casing 2,530 ft.; S.D. waiting orders 2,585 ft. |
| Woodley Pet. Co.'s No. 5-A Knight, 26,185 ft. E, 660 ft. N, SW cor. Township 16-12 | Location. |

**CATAHOULA PARISH**

| | |
|---|---|
| Lochnager Pet. Co.'s No. 1 Taliaferro, 572 ft. E, 396 ft. S, C, Sec. 26-9-6 | S.D. 900 ft. |

**CLAIBORNE PARISH**

| | |
|---|---|
| El Dorado Chief Oil Co.'s No. 1 Dance, C SW NE, Sec. 27-20-7 | S.D. 2,240 ft. |
| Leue Oil Co.'s No. 1 Taylor, Sec. 16-22-6 | Derrick. |
| Triangle Drlg Co.'s No. 1 Kilpatrick, 660 ft. S, 660 ft. E, NW cor. SW NE Sec. 7-19-5 | Drlg. rock 3,418 ft. |

**DE SOTO PARISH**

| | |
|---|---|
| Benson Oil Co.'s No. 1 Harris, Sec. 6-10-13 | Drlg. hard sand 2,335 ft. |
| Benson Oil Co.'s No. 1 Hill, 1,845 ft. S, 1,200 ft. W, NE cor. Sec. 4-10-13 | Arranging drill stem test 14 ft. sand 2,214 ft. |
| P. J. Becker, trustee's No. 1 Tull, SW cor. NE NE, Sec. 23-12-15 | Fishing 7 joints drill stem; T.D. 2,475 ft. |
| Longstreet Synd.'s No. 1 Ramsey, NE cor. SW NE, Sec. 33-13-16 | Changing to heavy rig and arranging to side.rack; T.D. 2,302 ft. |
| Magnolia Pet. Co.'s No. 1 Anna Mason, 990 ft. S, 990 ft. E, NW cor. SW Sec. 27-12-11 | Drill stem test 2,746 ft; small show gas casing 2,855 f.. |
| R. O. Roy's No. 1-B Farmer, 660 ft. S, 660 ft. E, NE SW, Sec. 8-13-13 | Derrick. |
| R. O. Roy's No. 1-E Farmer, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 5-13-13 | Began drlg. Nov. 29; drlg. 200 ft. |

**FRANKLIN PARISH**

| | |
|---|---|
| Davis et als' No. 1 Moore, 600 ft. W, 200 ft. S, NE cor. Sec. 12-11-4 | S.D. 1,430 ft. |
| Franklin Oil & Gas Co.'s No. 1 T. J. O'Brien, 300 ft. N, 300 ft. E, SW cor. NW Sec. 17-15-9 | Cmtd. 15½-in. 208 ft. |

**LA SALLE PARISH—WHITE SULPHUR DISTRICT**

| | |
|---|---|
| Tunica Pet. Co.'s No. 52 L. & A., 660 ft. N, 660 ft. W, SE cor., Sec. 17-7-2e | Began drlg. Nov. 28; cmtd. 10-in. 40 ft; casing 800 ft. |

**MOREHOUSE PARISH**

| | |
|---|---|
| J. P. White's No. 1 Chess-Wymond, Sec. 32-19-6 | Tested S.W. 3,025 ft.; W.O. |
| Rainbow Oil Co.'s No. 1 Louisville Cooperage Co., 990 ft. S and E, NW cor. NE Sec. 33-22-8 | Derrick. |

(Continued on Page 150)

## LOUISIANA-ARKANSAS PROVEN AREAS

**NORTH LOUISIANA**

**BOSSIER PARISH—BELLEVUE**

| Company, farm and location— | Remarks— |
|---|---|
| H. L. Morgan's No. 2 Wetherbee, 3,811 ft. E, 200 ft. S, NW cor., Sec. 28-19-11 | Drlg. anhydrite 2,175 ft. |

**BOSSIER PARISH—CARTERVILLE**

| | |
|---|---|
| Del.-Lal. Dev. Co.'s No. 5 Bollinger, Sec. 31-23-11 | Rig up; O.W.D.D; drlg. 3,100 ft. |
| Goodman-Johnson's No. 1 Martin, 330 ft. S, 330 ft. E, NW cor. SE, Sec. 26-23-12 | Casing 3,100 ft. |
| Magnolia Pet. Co.'s No. 1 M. A. Rogers, 660 ft. S, 660 ft. W, NE cor. NE SE Sec. 21-23-12 | O.W.D.D., rigging up; T.D. 3,137 ft. |
| Magnolia Pet. Co.'s No. 1 Robertson, 412 ft. S, 660 ft. E, NW cor. SW NE, Sec. 26-23-12 | O.W.D.D; rigging up to deepen; 3,058 ft. |
| Muslow Oil Co.'s No. 1 Barnett, 1,320 ft. W, 660 ft. N, SE cor., Sec. 25-23-12 | O.W.D.D; rigging up to deepen; T.D. 3,076 ft. |
| Muslow Oil Co.'s No. 1 Kilgore, 2,080 ft. N, 1,980 ft. E, SW cor., Sec. 31-23-11 | O.W.D.D; arranging to deepen; T.D. 3,078 ft. |
| Muslow Oil Co.'s No. 1 Mark Myer, 1,980 ft. N, 330 ft W, SE cor., Sec. 36-23-12 | O.W.D.D; arranging to deepen; T.D. 3,088 ft. |
| Muslow Oil Co.'s No. 1 Peyton, Sec. 30-23-11 | Drlg. sandy lime 3,090 ft. |
| Northwest La. Gas Co.'s No. 5 Bolinger, 252 ft. E, 200 ft. S, NW cor. Lot 7, Sec. 31, in Sec. 28-23-11 | Rigging up. |
| Nat. Gas Prod. Co.'s No. 1 U. S. Govt., 660 ft. N, 660 ft. W, C Sec. 31-23-11 | O.W.D.D.; arranging to deepen. |
| R. G. Smitherman, trustee's No. 1 Kilgore, 1,310 ft. E, 675 ft. S, NW cor., Sec. 31-23-11 | O.W.D.D; rigging up to deepen; T.D. 3,062 ft. |

**BOSSIER PARISH—ELM GROVE**

| | |
|---|---|
| La. Gas & Fuel Co.'s No. 2 Murff, 1,980 ft. S, 660 ft. W, NE cor. Sec. 24-17-12 | Rigging up. |
| La. Gas & Fuel Co.'s No. 4 Thigpen & Herold, 660 ft. N, 660 ft. W, SE cor. Sec. 12-17-12 | Location. |

**CADDO PARISH—GREENWOOD**

| | |
|---|---|
| Calatex O. & G. Co.'s No. 1-A Agurs, 819 ft. S, 157 ft. E, NW cor. SW, Sec. 7-16-16 | S.D; W.O; 2,975 ft. |
| Eastern Carbon Co.'s No. 1 Z. Abney, Sec. 8-17-16 | Drlg. 2,600 ft. |

**CADDO PARISH—HOSSTON**

| | |
|---|---|
| Bayou State Oil Corp.'s No. 28 Jolly, 500 ft. N, 150 ft. W, SE cor. NE, Sec. 22-22-15 | W.O.S.R. 1,004 ft. |
| Bayou State Oil Corp.'s No. 18 Levee Board, 450 ft. N, 150 ft. E, SW cor. NW, Sec. 22-22-15 | W.O.S.R; T.D. 1,003 ft. |

**CADDO PARISH—DIXIE**

| | |
|---|---|
| Sam Gold's No. 3 Hunter, 660 ft. N, 660 ft. W, SE cor. SW NE. Sec. 17-19-14 | 200 ft. oil and S.W. in hole 2,457 ft.; W.O.S.R; topped broken sand 2,415 ft. |
| Ohio Oil Co.'s No. 4 Hunter, 330 ft. N and W, SE cor. NW NE, Sec. 17-19-14 | Derrick. |
| Standard Oil Co.'s No. 4 School, Sec. 16-19-14 | Standing 1,300 ft. in oil; W.O.S.R; T.D. 2,439 ft. |
| The Texas Company's No. 2 Sentell, 990 ft. N, 272 ft. E., SW cor. Sec. 9-19-13 | Location. |

**CADDO PARISH—OIL CITY**

| | |
|---|---|
| Gulf. Ref. Co.'s No. 21-A Levee Board, 1,126 ft. S. 650 ft. E. NW cor. NE, Sec. 34-21-16 | Cmtd. 6-in. 1,800 ft. |
| Magnolia Pet. Co.'s No. 19 Doan-Thigpen, 330 ft. N, 990 ft. W, SE cor., Sec. 6-20-15 | Arranging plug back; T.D. 3,051 ft. |
| P. T. Mize's No. 1 La. O. R. Corp., 445 ft. N, 100 ft. E, SW cor. SE, Sec. 1-20-16 | Derrick. |
| The Texas Co.'s No. 72 Levee Board, 725 ft. N, 210 ft. E, SW cor. SE, Sec. 27-21-16 | Rigging up. |
| Thompson & Fitzsimmons' No. 1 Howell, 600 ft. S, 300 ft. W, NE cor. SE Sec. 13-22-16 | Rigging up. |

**PINE ISLAND**

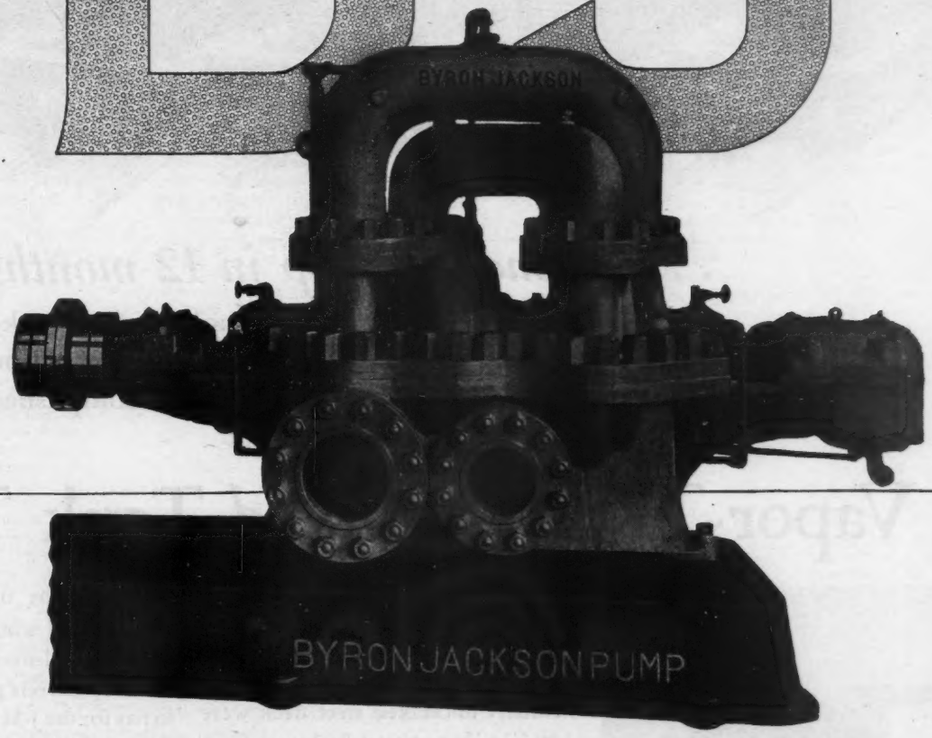
| | |
|---|---|
| E. W. McGoldrick's No. 1 Dreyfuss-Lane, 515 ft. N, 300 ft. E, SW cor. NE, Sec. 15-21-15 | Cmtd. 10-in. 40 ft; 6-in. 1,510 ft; W.O.S.R; 1,700 ft. |

**CLAIBORNE PARISH—HOMER**

| | |
|---|---|
| Oakes et als' No. 1 Richardson, NE SE, Sec. 19-21-17 | Reaming to bottom; T.D. 1,700 ft. |

(Continued on Page 120)

# PIPE LINE PUMPS




Byron Jackson pumps have brought about a new era in pipe line pumping. Their steady flow forces the maximum capacity through the line. In addition, these pumps are low in first cost; easy to install or to be moved to a new location; ideally suited for direct connection to either electric motors or steam turbines; inherently safe and reliable; may be controlled automatically in booster stations; inexpensive to operate. Stocks are maintained at strategic points throughout the oil fields.

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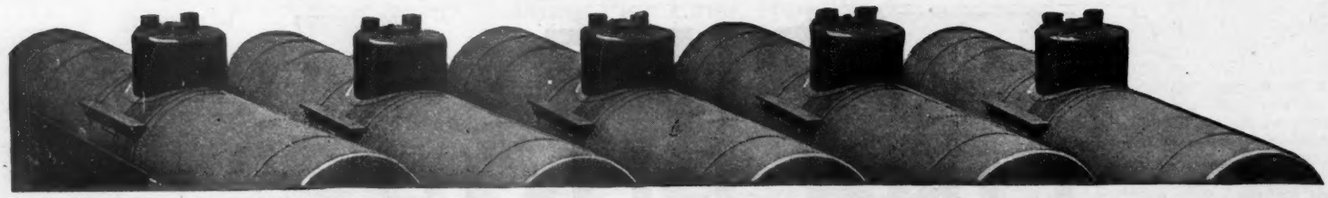
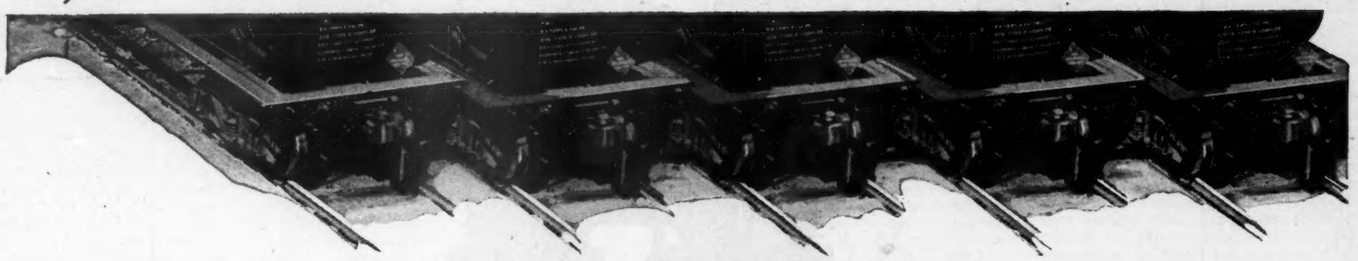


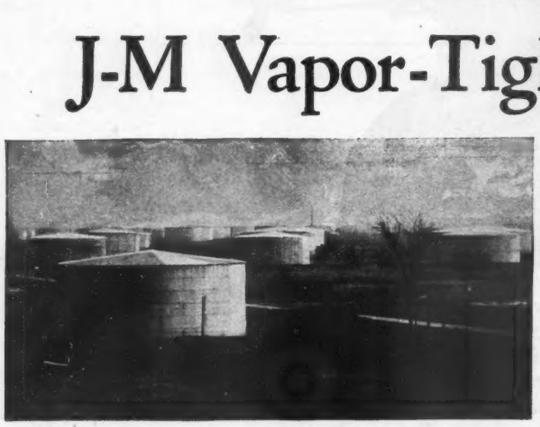
## 45,684 Gallons of Gasoline . . . Almost 5 Tank Cars Full

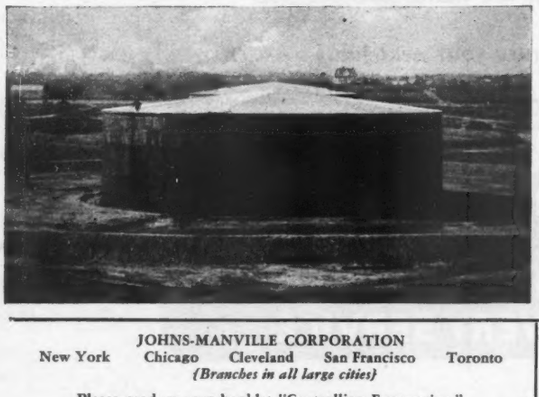


## . . . *by one tank top in 12 months*

The caulking and welding of steel tank roofs to make them vapor-tight will measurably reduce evaporation losses. But the important savings thus accomplished can be almost doubled by the use of

# J-M Vapor-Tight *Insulated* Tank Tops





A NINE months' test made by a Refinery* near the Gulf Coast showed the following results: Evaporation losses from a tank with ordinary uncaulked steel deck were 170 barrels per month; losses from a tank with caulked steel deck were 118 barrels per month; while in the tank fitted with J-M Vapor-tight Insulated Tank Top over uncaulked steel deck, losses were reduced to only 79 barrels per month.

In other words, the J-M Insulated Tank Top saved 91 barrels per month as compared with the uncaulked roof. In this case the J-M Tank Top will actually pay for itself in less than seven and one-half months, and thus represents a yearly return of 160% on the original investment.

Compared with the tank equipped with caulked steel roof, the J-M Top saved 39 barrels per month—enough to pay for the J-M construction in less than seventeen months. These comparative savings would of course be appreciably higher if the J-M Tank Top had been installed over a caulked and welded deck.

Figures such as those above are not unusual but have been paralleled again and again. They are the potent reasons why more than seventy million barrels of oil and gasoline storage are now being protected by J-M Insulated Vapor-tight Tank Tops. Complete details of the above and of similar tests are in our booklet.

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JOHNS MANVILLE JM CORPORATION

VAPOR-TIGHT INSULATED TANK TOPS
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# Big Creek Completes 9,000-Bbl. Well

## Two Good Producers on New Lost Creek Dome. Wildcat Gasser at Genoa, Harris County. Salt Dome in Matagorda County

By Neil Williams
*Staff Correspondent, Gulf Coast Fields*

HOUSTON, Tex., Dec. 9.—A 9,000-bbl. well at Big Creek, the addition of two more good producers at Pure Oil Co.'s new Lost Lake Dome, northern Chambers County, and a wildcat gasser at Genoa, Harris County, one of this year's torsion balance salt dome prospects, were among the chief features in Gulf Coast developments the past week. A series of other good wells also was completed in scattered fields and at the close of the week a number of wildcats were being watched by operators for possible proving of new areas. The discovery of what has been fairly definitely checked as another salt dome in southern Matagorda County also has become known with the leasing by the Humble Oil & Refining Co. and Gulf Production Co. jointly and the Shell Petroleum Corp. in an area just a few miles due southwest of the old Hawkinsville Dome.

### Big Creek's Biggest

At Big Creek, The Texas Company Saturday morning brought in what has proved to be the largest producer ever completed at that dome in its No. 3 fee, which is flowing at an estimated rate of 9,000 bbls. of pipe line oil daily. Production is from a sand at 4,063 feet, to which level the well was deepened approximately 35 feet from a horizon at which it formerly was a smaller well. A field, which has had a reputation of rather uncertain production, Big Creek the past year has yielded a series of prolific wells on the Gulf Production Co.'s Davis tract on the north, and with the new producer, is looking upward. On the Davis tract the Gulf company late in the week was completing another well, its No. 57, which flowed in the first hour approximately 30 bbls. of oil at 4,325 feet, which judging by present flow will not do justice to the late wells brought in there.

### Genoa Wildcat

What has caused considerable interest is Humble Oil & Refining Co.'s No. 2 Woodburn, a wildcat on the new torsion balance salt dome prospect at Genoa, just southeast of Houston, which was discovered earlier this year. Setting one joint of 6-inch screen at 3,425 feet, the well tested an estimated 15,000,000 feet of dry gas with rock pressure of 700 pounds, opening the second gas field at the edges of Houston within the past few months. Genoa is just a few miles to the east of the Mykawa Dome prospect, the other new gas field, on which two gassers have been completed although at present neither is producing. As with the declining of gas pressure in the Mykawa discovery well oil began showing, so there is a possibility of oil in the Genoa well or that the gasser is a forerunner of oil producers to come.

Whether Mykawa and Genoa are domes remain to be proved. They bear similar characteristics and each has been surrounded with some mystery because of their peculiarities. There has been considerable trouble definitely locating the Genoa Dome as geophysical checking of the prospect has "moved" it from one place to another several times. The dry gas wells are unusual for coastal domes but these domes, if they are such, are exceptionally deep, which might account for the gas. No. 2 Woodburn is the second test drilled at Genoa, No. 1 having been abandoned without drilling into the dome.

Two good wells were added at Lost Lake, northern Chambers County, these being Pure Oil Co.'s Nos. 5 and 7 Mayes, giving that dome five producing wells with a daily output of approximately 3,500 bbls. Lost Lake was opened for production early this year and like Mykawa and Genoa the first well was a dry gasser, but this, No. 1 Mayes, failed to produce at first because of the high pressure. No. 5 Mayes, 500 feet south of No. 1, was completed gauging 1,138 bbls. in the first 14 hours, and No. 7, 500 feet west of No. 1, gauged for four hours flowed 220 bbls. in that period. The former is producing from shale at 2,818 feet with 144 feet of 6¼-inch screen in the hole, and No. 7 has 45 feet of 5¾-inch screen at 2,840 feet. No. 5 Saturday was flowing better than 1,200 bbls. of oil with a fraction of a per cent of sediment but No. 7 was making around 1,200 bbls. with approximately 17 per cent water, sediment and sand.

### Pierce Junction Well

One of the best wells of the week was Navarro Oil Co. and Texas Exploration Co.'s No. 17 Dooley on the east side of Pierce Junction which came in estimated good for 2,400 bbls. of pipe line oil daily although choked to between 1,500 and 1,700 bbls. daily. It is producing from sand at 4,796 feet with 30 feet of screen in the hole. The well breaks a long lull at Pierce Junction during which only a few small wells have been added. This was one of two wells at this field, the other being Anderson & Plummer's No. 6 Whitehead, which made 750 bbls. of fluid, 6 per cent sediment, at 4,729 feet.

The deep horizon on the south side of Humble yielded only one small well, The Texas Company's No. 41 Stevenson, flowing 145 bbls. of oil, although drilling there is going full blast with a veritable old-time boom existing particularly in the new extension area where The Texas Company recently completed its No. 1 Dunman, an 8,000-bbl. well. The deep sands on the east and south sides of Barbers Hill, another active development area, also failed to add anything of importance although at the close of the week four deep wells were testing. On the south side of the dome, Yount Lee Oil Co.'s No. 4 Woodward flowed an estimated 600 bbls. of fluid, 3 per cent sediment and water, at 5,347 feet, and The Texas Company abandoned its No. 1 Lawrence, which tested salt water at 5,260 feet.

### West Columbia Completions

Considerable interest was centered in West Columbia the early part of the week following the completion by The Texas Company of its No. 25 Arnold on the west side of the dome as good for 2,000 bbls., 55 per cent oil, but later developments at that field, which the past few months has taken on a more active tone, were disappointing, with the abandonment of Gulf Production Co.'s No. 3-B Hogg and Humble Oil & Refining Co.'s No. 3 Smith, and the testing salt water in Saxet Oil Co.'s No. 2 Hogg. Continental Oil Co.'s No. 1 Hogg now is being watched closely because of the depth it has reached, as below 6,000 feet it is the deepest hole drilled there.

Union Sulphur Co. added another to its string of good wells being completed down the west side of the old Sulphur Dome, Calcasieu Parish, in its No. 753 fee flowing 1,700 bbls. daily. Other completions of the week included Houston Gulf Gas Co.'s No. 2 Morgan-Shelly, Refugio, flowing 100 bbls., at 3,659 feet; Independent Oil & Gas Co.'s No. 1 Claude Heard, Refugio, flowing 312 bbls. of oil, 3,678 feet; four producers at Raccoon Bend, Humble Oil & Refining Co. and Valley Oil Corp.'s No. 6-B Grawunder, No. 4-C Grawunder, No. 5 Thompson, and No. 3 Ollie Wilson; Gulf Production Co.'s No. 76 Phoenix, Hull, an old well deepened, flowing 1,400 bbls. daily at 3,859 feet; Republic Production Co.'s No. 76 Dolbear, Hull, deepened to 3,027 feet, pumping 250 feet of fluid, 80 per cent oil; Sun Oil Co.'s No. 53 Mitchell, Liberty, 220 bbls. oil, 3,162 feet; Humble's No. 19 Ashbel-Smith, Goose Creek, a small workover pumper; Paraffin Oil Co.'s No. 82 fee, a small, shallow pumper.

Vacuum Oil Co. in its third attempt again failed to find the dome at Roanoke, Jefferson Davis Parish, abandoning its No. 2 DeVilbiss in shale at 6,631 feet. Pure Oil Co. also abandoned its No. 3 Lost Lake at Lost Lake, Chambers County, and Yount Lee Oil Co. abandoned its No. 119 McFaddin at Spindletop in salt.

### Danbury Dome

Shell Petroleum Corp.'s No. 1 Blakely-Winston, on the Danbury Dome prospect, Brazoria County, tested salt water in a drill stem test of a sand at a total depth of 1,879 feet and now is drilling deeper. This is the test which swabbed some oil from a shallow sand at 1,572-77 feet and which probably would have made the discovery well if it had been put on the pump. Considering the shallow sands already found, although the dome is deep and the test was started for a deep test, and a blowout in a water well to start off the drilling, the Danbury has been considered as especially promising.

### Matagorda Prospect

Good indications have been given geophysically that another deep dome exists in Matagorda County a few miles due southwest of the Hawkinsville Dome which lies in the southeastern portion of the county near the Gulf of Mexico. Humble Oil & Refining Co. and Gulf Production Co. jointly have taken most of the acreage, although Shell Petroleum Corp. has obtained some desirable tracts.

Although this is the first new dome which has been discovered in some time, geophysical exploration has been keeping up actively in all parts of the Gulf Coast. Except for a few scattered small plays, however, leasing has been at low ebb.

Gulf Production Co. is rigging up for its first test on the Clodine Dome prospect in eastern Fort Bend County and bordering on the Harris County line, and with a large number of similar new prospects on which drilling is due to be started up on soon, the coming months are expected to be extremely interesting from a wildcat standpoint.

Daily production of Gulf Coast fields

(Continued on Page 116)

## GULF COAST FIELDS AND WILDCATS

Week Ended December 7

**BARBERs HILL—CHAMBERS COUNTY**

| | |
|---|---|
| Mills Bennett Production Co.'s No. 2 Collier (southwest) | Drlg. sand and lime 3,704 ft. |
| Mills Bennett Production Co.'s No. 2 Barber, north side | Drlg. sand, shale and lime 4,634 ft. |
| Mills Bennett Production Co.'s No. 4 Smith, east side | Drilled plug to test sand and shale showing oil 5,192 ft. |
| Mills Bennett Production Co.'s No. 3 Hammon-Armstrong (southeast) | Set screen to test 5,166 ft. |
| Mills Bennett Production Co.'s No. 1 Wilburn (southeast) | Cem. casing to test sand and shale 5,035 ft. |
| Mills Pennett Production Co.'s No. 2 Means (east) | Rig. |
| Gulf Prod. Co.'s No. 1 Wilburn | Drlg. sand and shale showing oil 5,210 ft. |
| Humphreys Corp.'s No. 3-A Kirby, north flank | Drlg. sand and shale 5,703 ft. |
| Humphreys Corp.'s No. 2-C Kirby | Sidetracked and drilling hard lime 3,023 ft. |
| Humphreys Corp.'s No. 1 Higgins | Swabbed some oil in cap rock 841 ft.; to pump. |
| Humphreys Corp.'s No. 1 Scott | Drlg. salt 2,906 ft. |
| Humphreys Corp.'s No. 1 McLean, east side | Drlg. sand and lime 1,955 ft. |
| Humphreys Corp.'s No. 2 Ilfrey, east side | Rig. |
| Republic Production Co.'s No. 3 Kirby (southeast) | Drlg. gumbo 5,075 ft. |
| Rexal Oil Co.'s No. 3 McLean, east flank | Rigging up to pump 5,170 ft. |
| Sinclair Oil & Gas Co.'s No. 2 Wilburn, southeast | Drlg. gumbo 1,521 ft. |
| Sinclair Oil & Gas Co.'s No. 1 McKinney (workover) | Drlg. hard lime 5,058 ft. |
| Sun Oil Co.'s No. 2 McKinney (southeast) | Pumped 20 bbls. oil, 80 per cent water; shut down. |
| Sun Oil Co.'s No. 1 Wilburn (southeast) | To set screen 5,453 ft. |
| Sun Oil Co.'s No. 2 Wilburn, southeast | Drlg. hard sand 4,824 ft. |
| Sun Oil Co.'s No. 3 Wilburn, southeast | Drlg. sand, shale and lime 3,235 ft. |
| Sun Oil Co.'s No. 4 Wilburn (southeast) | Derrick. |
| Sun Oil Co.'s No. 2 J. Wilburn (southeast) | Derrick. |
| Sun Oil Co.'s No. 4 Chambers (south) | Rig. |
| The Texas Company's No. 1 Lawrence | Tested salt water 5,260 ft.; abandoned. |
| Yount Lee Oil Co.'s No. 10 Chambers (south) | Drlg. shale and boulders 1,470 ft. |
| Yount Lee Oil Co.'s No. 11 Chambers, south | Drlg. gumbo 1,274 ft. |
| Yount Lee Oil Co.'s No. 4 Woodward, southeast | Comp. flowing 600 bbls. fluid, 3 per cent b.s. and water, 5,347 ft. |
| Yount Lee Oil Co. No. 5 Woodward, southeast | Drlg. lime 4,972 ft. |
| Yount Lee Oil Co.'s No. 1 Phillips | Drlg. lime 4,970 ft. |

**BOLING—FORT BEND AND WHARTON**

| | |
|---|---|
| Houston Gulf Gas Co.'s No. 1 Fields (northwest) | Rig |

**RACCOON BEND—AUSTIN COUNTY**

| | |
|---|---|
| Humble & Valley's No. 5 Austin College | Derrick. |
| Humble & Valley's No. 3 Beal | Drlg. shale and lime 3,366 ft. |
| Humble & Valley's No. 4-A Bracey | Comp. flowing 250 bbls. oil 3,546 ft. |
| Humble & Valley's No. 5-A Bracey | Flowing by heads 3,527 ft. |
| Humble & Valley's No. 6-A Bracey | Derrick. |
| Humble & Valley's No. 7-A Bracey | Location. |
| Humble & Valley's No. 3 Buchanan | Derrick. |
| Humble & Valley's No. 7-A Walton | Derrick. |
| Humble & Valley's No. 8-A Walton | Derrick. |
| Humble Oil & Refg. Co.'s No. 8-B Deutrich | Repairing rig after blowout 1,090 ft. |
| Humble & Valley's No. 9-A Deutrich | Drlg. sand and boulders 296 ft. |
| Humble & Valley's No. 11-B Deutrich | Derrick |
| Humble & Valley's No. 12-B Deutrich | Location. |
| Humble & Valley's No. 4 Woodley | Rig. |
| Humble & Valley's No. 5 Woodley | Derrick. |
| Humble & Valley's No. 6 Woodley | Derrick |
| Humble & Valley's No. 5-B Grawunder | Derrick. |
| Humble & Valley's No. 6-B Grawunder | Comp. flowing 480 bbls. pipe line oil 3,205 ft. |
| Humble & Valley's No. 7-B Grawunder | Drlg. plug 3,162 ft. |
| Humble & Valley's No. 10-B Grawunder | Derrick. |

(Continued on Page 121)

# Darst Creek Has 27 Tests Under Way

## Most of Them Are Drilling or Have Derrick Up, With Some About to Enter Pay. Major Companies Reach Proration Agreement

By B. D. Stevenson
*Staff Correspondent, Southwest Texas Fields*

SAN ANTONIO, Tex., Dec. 9.—There are 27 tests listed in the Darst Creek Field and all but a half dozen are drilling or have the derrick up. Most of them are active tests and some just about to go into the pay. Sun Oil Co. has made a location for the No. 1 Christopher Knoblock 150 feet from the SW and SE lines of the tract in the Joel R. Robinson Survey, and the Humble Oil & Refining Co. has made three locations on the L. G. Denman tract offsetting Sun on the southwest.

Six tests in the Darst Creek Field are past the chalk, two are in the Edwards lime and several others are well on their way. Some permits asked from the Railroad Commission in the south end of the field and for locations that look like sure shots for production may be granted at any time and start development in the lower end of the field, necessitating a lot of offsets.

The major companies have reached an agreement as to proration on the basis of 20 acres as the unit due to the leases being small, and the majors will go ahead and operate on that basis though it is understood that the Turman Oil Co. will not join in the program. If it gets oil on its leases it will build its own pipe line out any way and hence its production will not be a tax on the pipe line capacity. The Texas Company and the Humble Oil & Refining Co. each will have lines out of the field, but they will not be in operation for a few weeks yet.

The rainy weather recently prevailing over Southwest Texas made it impossible for pipe line construction to progress. H. H. Fitzpatrick is in the field acting as umpire for the major companies and those independents who have joined in the agreement. Sealey of the Texas and Suman of the Humble, represent the majors on the committee and Baker of the North & South, the independents.

### Dry Holes Feared

Fear prevailed last week that the Trinity Drillers and Clements' No. 1 Rand Miller, and the Turman Oil Co.'s No. 1 Rand Miller might prove dry. The Turman Oil Co. test is on the lease that has been the fly in the ointment of proration. If the first test proves dry it wont make much difference whether the owner enters the proration agreement or not. However, if it is dry the geology seems to indicate that both the Turman Oil Co. and Trinity Drillers may have productive locations on their leases a little farther southeast. Each has entered the Edwards, with neither announced as a well though not pronounced dry.

A further overproduction of crude oil from the Darst Creek Field is not considered by many as a serious proposition. Some reports have been made that the field could be raised to arround 100,000 bbls. daily, if the field were drilled rapidly. The fear is now expressed that the Darst Creek Field is badly cut up with cross faults which do not appear on the surface and that as a result it cannot be taken as a foregone conclusion that acreage between two producers 3 miles away will be productive merely because it is between the two producers. Magnolia Petroleum Co.'s No. 1 Appling and the Penn Oil Co. and Simms Oil Co.'s No. 1 Manford, at the northeast end of the field, are not producing from the Edwards in the regular way. The production may come from the Edwards, but if it does it comes up a fault plane or through cavity as neither well drilled to the Edwards.

### Two Permits Pending

The last week two permits were pending before the Railroad Commission in Austin. Arguments were heard on Thursday of last week. Jake Jarmon applied under the rules for a special permit to drill on the north end of a 20-foot strip laid off for a road and Turman Oil Co. for permit to drill on a similar narrow strip alongside it. If these are granted, as it is supposed they may be, drilling will start in that end of the field.

Mundine Investment Co.'s No. 1 Echols in the northeast end of the field topped the Georgetown at 2,716 feet. Turman Oil Co.'s No. 1 Rand Miller got the top of the Edwards at 2,614 feet and drilled 9 feet in, and Trinity Drillers topped the Edwards in its No. 1 Rand Miller at 2,617 feet and drilled to 2,621 feet. Edwards was encountered at regular depth, corresponding with the discovery well but results looked discouraging, hence the idea of much cross faulting.

Two wildcats in the vicinity of the Darst Creek Field are attracting attention. One is the Adams & Lyles' No. 1 Zoboroski on the south side of the Guadalupe River and about 7 miles southwest from the Darst Creek Field has been showing a little oil in the Austin. It is not in line with the axis of the Darst Creek Field and has little relationship to that field. It is about 2 miles northwest of the line of the Darst Creek production. Depth of the Adams & Lyles' No. 1 Zoboroski is 2,019 feet and in the chalk. Six miles due north of that, Pahenkopf & Kennon's No. 1 Halm, in the Joseph Kent Survey, was in Del Rio at 1,872 feet and with a showing of oil that has prevailed ever since it topped the Austin chalk at 1,622 feet.

### Watching Shell's Test

More than ordinary interest attaches to the test the Shell Petroleum Corp. is making in Guadalupe County, about 4 miles south of the discovery well of the Darst Creek Field and nearly the same distance southeast of the line of Darst Creek production. Since early in the history of the Darst Creek Field, there have been those who held the idea that the Darst Creek structure was not the major one and that another more productive structure would be found a little southeast of it. Shell Petroleum Corp. is now down around 1,000 feet on its first test on the Denman farm on this structure. After doing a great deal of geological research work including the use of geophysics it selected a strip of land 3,800 feet wide down through the Denman farm. If there is another structure to the southeast of the Darst Creek structure this test may help to disclose it.

Formations will be encountered lower here than in the Darst Creek Field. Grayburg Oil Co.'s No. 1 Wells, located about 3 miles southwest of the Shell's test topped the chalk at 3,495 feet and has a total depth now of 3,890 feet and is reaming down the hole. It has had some showings of oil that were encouraging.

### Starr County Well

The Texas Company is running tubing in its No. 4-A Guerra in Starr County, reported last week as opening a new pool, the first in that county. Total depth of the test is 3,566 feet with sand from 3,560 feet and it is standing 2,300 feet in oil of 35 gravity. It may be it will flow when tubing is run. Importance of the new field does not yet fully appear. It is 4 miles north of Roma and 50 miles south of the Mirando Field. Additional tests may be necessary before it is known what they had. The discovery is not attracting much attention due to The Texas Company owning all the leases for many miles around.

Other features of the Laredo territory the last week included completion of five producing wells, two of them oil wells of 15 bbls. and 75 bbls., respectively, and three gas wells of 20,000,000 feet, 5,000,000 feet and 25,000,000 feet. Killam-Duggan's No. 11 Cuellar in Zapata County is the 5,000,000-foot gas well and in a territory where the other tests drilled have been oil wells.

Something may be looked for in the north central part of Zapata County before long. National Oil Co.'s No. 1 Don Adams has been shut down at 670 feet on account of lack of water. It finally has rained in that country and work is resuming. After being shut down for a while the well began to develop gas and enough has been coming up through the mud that the whistle could be heard a quarter of a mile away. The well has been shut down for weeks waiting for it to rain. Now that it is to be deepened everyone is anxious to know what happens.

### Production

Daily average production of the pools in Southwest Texas in the week ending December 7 follows:

| | |
|---|---|
| Branyon | 21 |
| Brunet | 31,758 |
| Dale | 475 |
| Darst Creek | 1,374 |
| Kingsville | 314 |
| Larremore | 150 |
| Luling | 9,980 |
| Lytton Springs | 883 |
| McMullen County | 32 |
| Medina County | 24 |
| Mirando | 9,916 |
| Somerset | 1,742 |
| Yoast | 1,115 |
| Total | 57,784 |
| Week ending November 30 | 58,951 |
| Decrease | 1,167 |

### Somerset Deep Test

Alexander Boynton's No. 1 Fee in the southwest end of the Somerset Field is being deepened. It was drilled in the early days of the field as the George I. Brown's No. 1 Fuller, and came in a gas well but has been shut in for several years. Both fee and lease have been acquired since by Boynton. It may be deepened to the Edwards lime. Boynton has leases or fee ownership of several thousand acres southwest of production in the field and plans to deepen the No. 1 Fee and to drill two other tests.

After drilling several formation tests to around 1,500 feet in the southwest corner of Brooks County the Milam Drilling Co. (W. G. French) drilled the No. 8 Riley Allen to 3,070 feet and it is dry and being abandoned. It skipped the No. 5 location in drilling the formation tests and is now rigging up on it and it will likely be drilled deep.

F. P. Zoch's No. 1 Kaufmann in western Goliad County has set casing to test a gas sand at 4,184-98 feet. On a drillstem test it looked good for a gas well. It will be tested out in a few days. It is several miles west of the Mission Drilling Co.'s No. 3 Ray, which got 5,000,000 feet of gas and some oil at 4,115 feet. Three miles farther west is the Mission Drilling Co.'s No. 2 Ray, a gas well at about 2,900 feet. It looks as though there is a

(Continued on Page 122)

## WILDCAT OPERATIONS IN SOUTHWEST TEXAS

Week ended December 7

**BASTROP COUNTY**

T. C. Hadley's No. 1 F. Kiel, R. H. Grimes Sur., 150 ft. E line, 1,000 ft. S line ..... Abandoned dry 3,735 ft.
Johnson Brother's No. 1 W. C. Bryan, Stidham Sur., 5 miles W from Red Rock ..... Drlg. in shale 1,070 ft.
R. L. Batts et al's No. 1 A. L. Alexander, W. M. Eastland Sur., 1,350 ft. from W line, 750 ft. from S line ..... Drlg. in shale 940 ft.
Humble Oil & Refining Co.'s No. 1 C. W. Corbell, J. G Lentz Sur., 150 ft. to NE line of lease, 4 miles N from Red Rock ..... Location.
Owens et al's No. 1 Goodman ..... Top Buda; shut down 3,540 ft.

**BEE COUNTY**

Houston Oil Co.'s No. 1 McKinney, L. C. Randolph Sur ..... T. D. 3,127 ft.; testing sand 3,122-27 ft.
The Texas Company's No. 2 Tipps ..... Location.
Nichols et al's No. 2 Hicks in Jose Maria Uranga Survey, 600 feet to N. line, 2,000 feet to W. line ..... T. D. 2,000 ft.; shows pressure of 640 lbs. at casinghead; not cleaned of mud.

**BEXAR COUNTY**

Burton Oil Co.'s No. 1 P. H. Shook, in Monjares Sur., 3,150 ft. to E line, 150 ft. to N line of farm, 10 miles SE from San Antonio ..... Erecting steel derrick.
Guy G. Fisher's No. 1 S. L. Beck, P. W. Hays Sur. ..... T. D. 1,002 ft.; shut down.
F. H. Eckert's No. 1 Sandemer, Sur. 53 ..... Drlg. 615 ft.
Penn-Tex Oil Co.'s No. 1 Kate May, F. R Dessauge Sur. No. 134 ..... Drlg. in Georgetown lime 2,060 ft.
Ross E. Fenton Co.'s No. 1 Clarence V. Uhl, 150 ft. to S and W lines, 6 miles SE from San Antonio ..... Location; failed to get water well arranging to lay a water line.
Moore-Jauer's No. 1 Holly R. Ellison ..... Set and cmtd. csg. 1,803 ft.
Leon Oil Co.'s No. 1 Reiniger, 300 ft. E line, 215 ft. S line ..... T. D. 1,675 ft.; a fresh water well in Edwards; T. C. 1,850 ft.; T. Ed. 1,670 ft.; abandoned.
E. G. Potter's No. 1 Watson, B. Martinez Sur. ..... T. D. 2,509 ft.; bailing every other day.
W. C. Sutherland's No. 1 J. Halberdier, Survey 57, located 150 E of Cen of W. line ..... Location.

**BLANCO COUNTY**

Ashe & Marshall's No. 1, 5 mi. S Johnson City ..... Survey corrected; erecting National rig.

**BROOKS COUNTY**

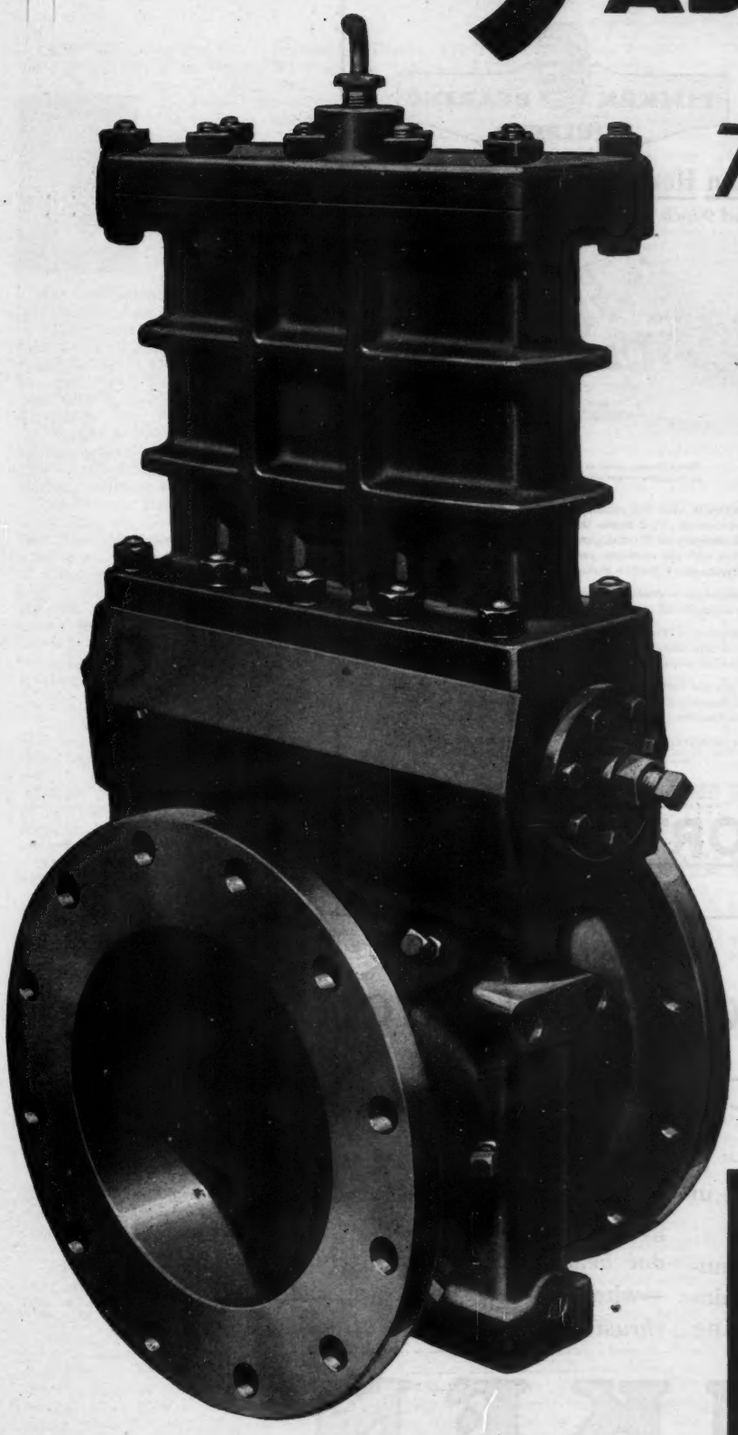
Amos Dinn, Trustee's No. 3 Garcia-Ramosi, share B-1, Las Mestenas y Gonzales grant, 1300 ft. S line, 2,325 ft. W line of share B-1 ..... T. D. 1,401 ft.; sand; making drill stem test.
Humble Oil & Refining Co. & Shell Petroleum Co's No. 1 Singer, Alta Verde Subd., 2,500 ft. S of N line, 333 ft. W of E line of Sec. 312 ..... Location.
W. G. French's No. 8 Riley Allen, C Blk. 37, Nesslip Subdivision of Allen Ranch, NE part ..... Abandoned 3,007 ft.

**CALDWELL COUNTY**

Joe Bruner's No. 1 Nell, S. Morris Sur., 400 ft. NE and NW lines ..... Location in Magnolia tank farm at Luling; delayed by suit to compel Magnolia to move tank

(Continued on Page 118)

# THESE 9 ROBINSON ADVANTAGES SAVE *Time and Money*



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1. Big saving in cost of materials due to elimination of valves, tees, ells, couplings, flanges, pipe, etc., used in old style hook-up.
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9. Gas *cannot* leak by the Robinson Fitting. Gas all goes through orifice to be correctly measured. No by-pass valve to stick open. Nothing to get out of order.

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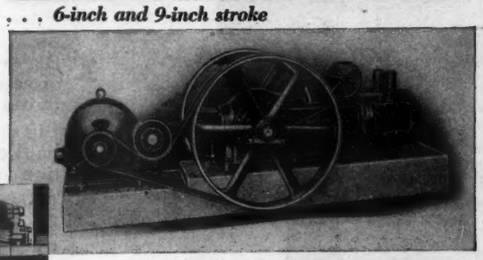
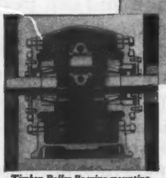


*Timken Bearings require no adjustment for years . . . an important feature for the compressor user whose equipment is attended by unskilled operators*



*Timken Roller Bearing mounting on crankshaft journals*

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Worthington knows—as every manufacturer of Timken-equipped machinery knows—that "Timken Bearing Equipped" is a dominant factor in improved performance, reduced costs and greater endurance—for Timken is *the one bearing that does all things well* —whether the loads are all *radial,* all *thrust or a combination of both.*

TIMKEN

TRADE MARK REG. U. S. PAT. OFFICE

# Limit of Hobbs Pool Probably Found

## Shell Petroleum Corp.'s No. 1 Terry, Mile and a Quarter South of Nearest Production, Has Hole Full of Sulphur Water

By Tolbert R. Ingram
*Staff Correspondent, Rocky Mountain Area*

DENVER, Colo., Dec. 9.—A development of interest in the Rocky Mountain area the past week was the evident marking of the southern limits of the Hobbs Pool in Lea County, New Mexico. The Shell Petroleum Corp.'s No. 1 Terry, a mile and a quarter south and east of the nearest producer in that pool has a hole full of sulphur water.

The Continental Oil Co.'s No. 1 A. E. Meyers, 15 miles east of the Lea Pool in Lea County, is making 77,000,000 feet of gas at 3,850 feet, and Cranfill & Reynolds' No. 1 Cushing, to the north of the Jal Field, was completed at 3,205 feet with a flow of 41,000,000 feet of dry gas.

Colorado is to have another test in the southern part of the state on the high that divides the Trinidad and Denver Basins, northeast of Walsenburg.

The Oregon Basin Field in Wyoming is showing an increase in activity with two new locations made by the Texas Production Co. and Charles E. Orchard. The Lenco Petroleum Co. has a completion in that field in its No. 1 Morris, estimated at 300 bbls. The Midwest Refining Co.'s No. 1 Rosenberg, on the Frannie Dome in Park County, has increased its flow to 750 bbls. a day after starting off at 95 bbls.

### NEW MEXICO

The Shell company's well, SE SW NE Section 22-19-38, is shut down at a total depth of 4,238 feet in sandy lime with a hole full of sulphur water at 4,235-38 feet. There was an oil show at 4,207-18 feet in a horizon which apparently corresponds with the producing horizon in the other wells.

No. 1 Terry is located 1¼ miles south and slightly east of the Midwest Refining Co.'s No. 24 Leach, NE SE NW Section 15-19-38, which topped the pay last August at 4,105 feet and was completed at 4,165 feet with an average production of 850 bbls. a day for the first three days. The Terry well ran approximately 103 feet lower, sea level datum, than No. 24 Leach.

The Midwest Refining Co.'s No. 6 Wright, NW cor. SW Section 14-19-38, which commenced spudding on November 25, and is drilling at 145 feet in red rock, is located one mile to the northeast of Shell's No. 1 Terry and more closely on the northwest-southeast trend of the wells that have been completed so far.

The Ohio Oil Co.'s No. 1 State, NE SE SW Section 9-19-38, which is a mile to the west and south of the nearest producers, is plugging back from 4,312 feet at 4,208 feet after having a hole full of sulphur water at 4,210 feet. It swabbed considerable oil at 4,150-4,208 feet before being drilled deeper.

The Humble Oil & Refining Co.'s No. 1 Bowers, C NE SE Section 30-18-38, located 3 miles to the northwest of the producers, is bottomed at 3,740 feet in hard sand and is mixing mud. This well mudded off a flow of 50,000,000 feet of gas at 3,684-87 feet to drill deeper. The Midwest Refining Co.'s No. 13 Terry, SE NE SW Section 10-19-38, is drilling at 2,833 feet, and its No. 24 State, NE SE SW Section 10-19-38, is drilling at 2,920 feet in broken lime. The Shell Petroleum Corp.'s No. 1 McKinley, SW cor. Section 19-18-38, a mile to the northwest of the Humble's No. 1 Bowers, is an abandoned location. Harrison and others' No. 1 Tatum, NW SW SW Section 35-18-38, is drilling at 275 feet in red rock. and the Shell Petroleum Corp.'s No. 1 Thorpe, SW NW SE Section 10-19-38, is drilling at 2,770 feet in anhydrite.

#### Lea Field

In the Lea Field in about the center of Lea County and 25 miles to the southwest of the Hobbs Pool, the drilling wells appear to be running regular and struck the salt in line with the Texas Production Co.'s No. 1 Lynch and Cranfill & Reynolds' No. 1-B State, and the general belief is that most all of them will be producers.

Cranfill & Reynolds' No. 2-B State, NW cor. Lot 9, Section 2-21-33, one location west of their producer, is drilling at 3,150 feet in salt after cleaning up a fishing job that lasted several days, and their No. 3-B State, SW cor. Lot 9, Section 2-21-33, is drilling out cement plug after setting the 10-inch at 1,797 feet.

The Texas Production Co.' No. 1-A State, SE cor. Lot 8, Section 2-21-33, set the 10-inch at 1,675 feet, and its No. 2-A State, SW cor. Lot 8, Section 2-21-33, is drilling in salt at 1,840 feet after setting the 10-inch at 1,712 feet. The same company's No. 1-B State, SW cor. Lot 5, Section 1-21-33, is drilling at 1,245 feet in the red beds. It had a hole full of water at 1,020 feet.

Snowden & McSweeny's No. 1 State, NW cor. SW Section 1-21-33, is drilling at 1,365 feet in the red beds and the Continental Oil Co.'s No. 1 State, NW cor. Lot 12, Section 1-21-33, is drilling in salt at 2,165 feet after setting the 10-inch at 1,860 feet. The Amerada Petroleum Corp.'s No. 1 State, SW cor. Lot 7, Section 1-21-33, is drilling at 1,950 feet in salt.

#### Continental Gets Gasser

Among the wildcats in the area to the east and southeast of the Lea Field, the Continental Oil Co.'s No. 1 A. E. Meyers, NE SW SW Section 17-21-36, attracted attention when it was reported making 77,000,000 feet of gas at a total depth of 3,850 feet. This well had a flow of 31,000,000 feet at 3,278 feet last September. At that depth a rotary was installed and drilling resumed. At 3,450 feet it encountered more gas, estimated at 20,000,000 feet. This location is about 15 miles east and a little south of the Lea Field, and 8 miles northwest of Eunice. It is 2½ miles to the northeast of the same company's No. 1 Lockhart, NW NW Section 31-21-36, which was completed last March at 3,990 feet and made 278 bbls. the first 24 hours after cleaning out.

About midway between this well and the Lea Field is the Empire Gas & Fuel Co.'s No. 3-B State, SW NE SE Section 5-21-35, which is shut down at 4,065 feet with a hole full of water. In this same general area, the Continental Oil Co.'s No. 1 William Meyers, SW cor. NW Section 28-22-36, is drilling at 3,750 feet, and the Penn Oil Co.'s No. 1 State, NE Section 21-19-36, is bottomed at 3,449 feet in lime and preparing to shoot a bad hole at 3,300 feet. The Empire Gas & Fuel Co.'s No. 1 Closson, NE NW SE Section 6-22-36, a big gasser, is recementing the 6⅝-inch for the third time at 3,597 feet preparatory to drilling deeper. Fisher & Lowrie's No. 1 State, NE cor. NW Section 11-18-36, to the west of the Hobbs Pool, is drilling at 1,890 feet in red rock. Farther to the south in this general area in the direction of the Jal Field, the Texas Pacific Coal & Oil Co.'s No. 2 State, NW cor. SW Section 21-23-36, which is on a production test at a total depth of 3,712 feet, pumped and flowed 210 bbls. in 15 hours. Half a mile to the north of this well, Cranfill & Reynolds' No. 1-C State, SW SE SW Section 16-23-36, is building road to location.

#### Gasser for Cranfill & Reynolds

Farther south and just to the north of the Jal Field, Cranfill & Reynolds' No. 1 Cushing, SW SE NW Section 23-24-36, was completed at a total depth of 3,205 feet as a gas well, the flow of dry gas gauging 41,000,000 feet. The location is half a mile to the east of the same firm's No. 1 Meyers, a gasser, 5 miles south of the Continental Oil Co.'s No. 1 Lynn, a gasser, and 4 miles north of the Continental's No. 1 Wells, an oil well. The gas horizon was topped at 3,204 feet and drilled into one foot. The elevation of this well is 3,336 feet and the top of the salt was at 1,762 feet, the base at 2,660 feet and the top of the lime at 2,795 feet.

In the Jal Field, the Continental Oil Co.'s No. 2 Sholes, Section 13-25-36, is digging cellar. The Humble & Refining Co.'s No. 2-A Lindley, C SW SW Section 13-25-36, is drilling at 3,235 feet in gray lime and had some gas at 3,167 feet. The Empire Gas & Fuel Co.'s No. 1 Lindley, C NE SE Section 14-25-36, is drilling at 2,078 feet in salt.

Scattered wildcats in Lea County include the following: Barnsdall Oil Corp.'s No. 1 Bronson, SE cor. Section 28-16-38. north of the Hobbs Pool, is bottomed at 1,335 feet and underreaming the 10-inch to 1,324 feet. A. D. Morton and others' No. 1 State, C NW Section 29-11-38, near Tatum, is drilling at 1,990 feet in red rock, and Buell & Hagen's No. 1 State, C NE Section 33-11-35m is shut down at 4,515 feet.

#### Eddy County

In Eddy County, Etz Brothers' No. 1 Etz, C SE SE Section 13-16-30, is drilling at 3,175 feet, and Lockhart and others' No. 1 Parke, SE cor. Section 10-17-30. is drilling at 3,390 feet. Naylor and others' No. 2 Danciger, NW cor. SW Section 18-17-31, is running the 6¼-inch to 3,185 feet, and Leonard & Levers' No. 1 Levers, NW cor. SE Section 21-17-29, is running the 6¼-inch to 2,550 feet. F. B. Van Horn's No. 1 Santa Fe, SE SE Section 18-19-26, is drilling at 150 feet, and Flynn, Welch & Yates' No. 57 State, NE cor. SE Section 19-19-28, is drilling at 150 feet.

In San Miguel County, the Cibola Petroleum Co.'s No. 1 Crow, SW NW SE Section 19-13-14, is bottomed at 490 feet and underreaming the 12½-inch to 350 feet.

In Valencia County, the Acme Development Co.'s No. 1 Santa Fe, SW NW Section 27-7n-4w, is reported drilling at 4,540 feet and to have a show of gas after penetrating the granite wash topped at 4,184 feet, and Harlan and others' No. 1 Harlan, Section 5-6n-2e, is drilling at 2,300 feet.

In Socorro County, Lockhart & Co.'s No. 2 Stackhouse, NE cor. SE Section 14-3s-6e, is drilling in the Pennsylvanian at 1,425 feet. It topped the Abo sand in the lower Permian at 500 feet.

In San Juan County, the Kutz Canon Oil & Ga Co.'s No. 1 Day, SW cor. Section 20-28-10, is drilling at 1,170 feet.

### UTAH

The Utah Oil Refining Co.'s No. 31 Pary, on the Butler Valley structure in Kane County, southern Utah, which is being drilled by the Midwest Refining Co., commenced spudding on November 20 and is drilling below 275 feet. A complete camp has been installed and drilling is expected to continue through the winter without any serious interruption on account of the weather.

The Continental Oil Co.'s No. 1 Boundary Butte, Section 22-43-22, San Juan County, is still cleaning out bridge

(Continued on Page 108)

# TURNER VALLEY FIELD EXTENDED BY WELL IN EXTREME SOUTH END

By Victor Lauriston
*Staff Correspondent, Canadian Fields*

CHATHAM, Ontario, Dec. 7.—The Turner Valley Field was materially extended and new production possibilities uncovered when Merland Oil Co.'s No. 1, Section 27-18-2w5, in the extreme south end, got a big production of wet gas in the Dalhousie sands at 4,453 feet, the flow immediately catching fire apparently through a fragment of rock striking a spark from metal. The gas flow, estimated between 25,000,000 and 30,000,000 feet, burned to a height of 150 feet. The well came in unexpectedly. The drillers had just removed the bailer when a rumbling sound was heard and the gas broke loose. Some gas had been encountered previously and it was planned to test the Dalhousie sands at 4,463 feet. Damage through the fire amounted to approximately $75,000, stated to be covered by insurance; the well itself is not damaged and at last reports a tractor was being used to haul the red-hot machinery to a safe distance before extinguishing the fire.

Merland's No. 1 is the farthest south test in the Turner Valley, being about 5 miles south of the nearest producing wells. Location was made last spring for Merland Oils, Ltd., by Russell V. Johnson, geologist, of Calgary. The gas flow is claimed to be the largest yet struck in the Turner Valley Field. Getting so large a gas flow in the Dalhousie sands, without going to the deep lime, was unexpected, though the Dalhousie sand in the south end has occasionally shown a fair production of light crude. There is some question whether the ultimate recovery will be light crude oil or crude naphtha, though the former is expected. It is thought possible, however, that this production may be derived from the lime, owing to possible fractured condition of the lime in the south end of the field. Sterling Pacific Oil Co.'s No. 1, a short distance north of Merland's No. 1, recently got the lime after drilling through the Dalhousie sands without encountering any very large show of oil or gas. Merland Oil Co. is incorporated under Dominion charter at Vancouver, B. C. Officers are: president, Col J. A. Bell.; vice president, F. D. Lundy; secretary-treasurer, F. J. Perry; managing director, Alfred Hinds; directors, A. H. Douglas, R. R. Lamb, George Tull, Frank Henderson.

Merland's No. 2 is being started a little south of No. 1 in the same section.

#### Two Deep Lime Producers

In addition to the unexpected development in Merland's No. 2, the south end of the field is featured by what appear to be two small producers in the deep lime. East Crest Oil Co.'s No. 1, LSD 5-6, Section 16-19-2w5, which got the lime at 4,312 feet, a high point for the south end, is drilling about 4,359 feet, with wet gas production increasing. Pro-

(Continued on Page 108)

# Santa Fe Deep Wells Hold Up Output

## Close Observers Expect Drastic Crude Price Cut in That Field Unless Certain Operators Live Up to Agreement

By L. P. Stockman
*Staff Correspondent, California Fields*

LOS ANGELES, Calif., Dec. 7.—Crude oil production in California is just about where it was at the end of last year except of course, that the present potential yield and quantity of production curtailed is greatly in excess of similar figures for the corresponding period of 1928. The accompanying chart, showing state production for 1928 and 1929, indicates a consistent upward trend since January 1, 1928, and graphically portrays the precipitous drop resulting from conservation work and curtailment activities in November, 1929. The substantial reduction in California crude oil production during November, reflecting a mutual artificial curtailment of approximately 200,000 bbls. per day, has temporarily relieved conditions on the Pacific Coast, but it is imperative that this restriction be maintained if operators expect to stabilize the price structure.

During the past week operators in the prolific Elwood Field of Santa Barbara County arbitrarily cut down crude oil production under the supervision of Umpire H. P. Grimm and hope to reach their objective soon. This curtailment was initiated on December 1 in conformity with a gentleman's agreement effected late in November and guaranteed by a bond assuring fulfillment of contractual obligations. Operators in the Ventura Avenue Field likewise responded to curtailment work this week and will within a very short time reach their desired objective. It is interesting to note in this connection that the production of natural gas at Ventura Avenue has been cut nearly 50 per cent during the past 10 days and a further reduction is now under way in order to bring field production down to a maximum of 150,000,000 feet daily. Production of natural gas has been reduced 125,000,000 feet daily, curtailment work having cut the actual output down from 285,000,000 feet to 160,000,000 feet per day. This reduction in gas production was accomplished by reducing crude oil production approximately 10,000 bbls. a day.

The importance of restricting crude oil production in flush fields and the moral obligation resulting from a gentlemen's agreement to curtail production has apparently failed to find a responsive chord among several operators at Santa Fe Springs and Long Beach. Aside from the moral responsibility of participating, several operators are still jeopardizing curtailment activities in California and a continuance of this condition will sooner or later void curtailment work and may precipitate another drastic price cut. Umpire Grimm's report covering curtailment work at Santa Fe Springs reveal two operators as the principal offenders in that district. Report No. 1, issued on November 18, showed that one of these operators produced 116,532 bbls. in excess of his allowable production for the period from November 1 to 14 inclusive, and that another produced an excess of 57,544 bbls. during the same period. In conformity with the Santa Fe Springs' agreement this excess production was to be charged off against the potential production of each operator for the next subsequent period. Neither has been penalized for this excess, according to Umpire Grimm's latest report, which casually mentions the fact that certain adjustments have been made as to the production of some companies that are not shown in detail in report No. 2. This is a very diplomatic way of saying that these two operators have failed to fulfill their moral obligation to curtail along with the rest of the field.

Umpire Grimm, who is experiencing exceptional success with his conservation work, credits Santa Fe Springs with a potential production of 280,904 bbls. per day for the 15-day period ending December 15. Due to an excess daily production of 4,932 bbls., the allowable production for this period is fixed at 145,071 bbls. daily. The General Petroleum heads the production list and, in conformity with the curtailment agreement, will be permitted to produce a total of 23,190 bbls. per day between December 1 and 15. During the same period the Union Oil Co. will be allowed to produce 17,613 bbls. daily; George F. Getty, 17,256 bbls. daily; Standard Oil Co., 16,315 bbls. daily; The Texas Company., 14,561 bbls. daily; Wilshire Oil Co., 12,856 bbls. daily; Shell Oil Co., 11,816 bbls. daily and the Richfield Oil Co., 4,458 bbls. daily.

**TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS**

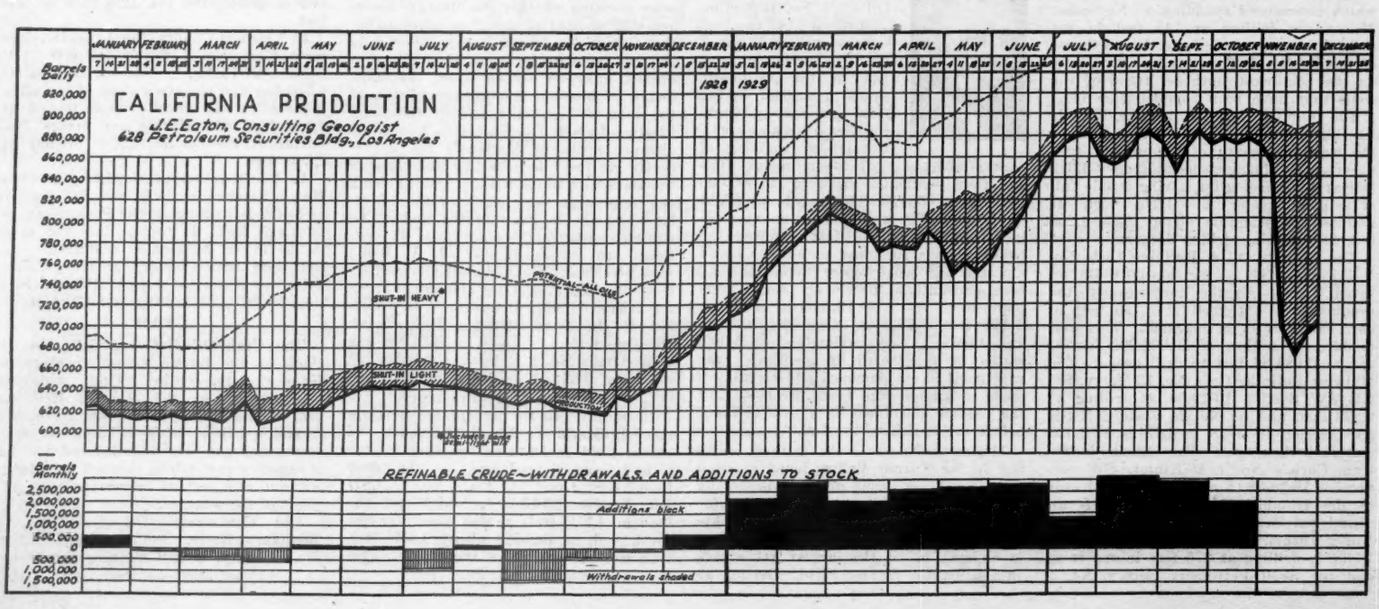
| Commodity— | Total this week | Daily average | Total last week | Daily average | This year to date | Same time last year |
|---|---|---|---|---|---|---|
| Crude oil | ..... | ..... | ..... | ..... | 997,250 | 2,988,419 |
| Fuel oil | ..... | ..... | ..... | ..... | 468,825 | 143,471 |
| Diesel and gas oil | 170,605 | 24,372 | 132,278 | 18,897 | 2,804,124 | 1,824,367 |
| Gasoline | 501,827 | 71,690 | 506,910 | 72,416 | 19,831,490 | 13,328,350 |
| Kerosene | ..... | ..... | ..... | ..... | 49,750 | ..... |
| Naphtha distillate. | ..... | ..... | ..... | ..... | 81,750 | 339,100 |
| Coastwise— | | | | | | |
| Crude oil | 187,000 | 26,714 | 296,132 | 42,305 | 24,467,216 | 23,001,091 |
| Fuel oil | 356,131 | 50,876 | 567,794 | 81,113 | 18,519,302 | 16,220,998 |
| Diesel and gas oil | ..... | ..... | 38,856 | 5,551 | 1,182,684 | 1,074,144 |
| Gasoline | 401,130 | 57,304 | 297,329 | 42,476 | 10,577,489 | 9,078,841 |
| Kerosene | 295 | 42 | ..... | ..... | 70,581 | 66,757 |
| Naphtha distillate. | ..... | ..... | ..... | ..... | ..... | 239,071 |
| Exports— | | | | | | |
| Crude oil | 64,568 | 9,224 | 152,245 | 21,749 | 5,715,199 | 1,958,932 |
| Fuel oil | 331,990 | 47,427 | 583,882 | 83,412 | 17,732,552 | 20,931,333 |
| Diesel and gas oil | 87,193 | 12,457 | 80,855 | 11,551 | 2,601,631 | 2,131,899 |
| Gasoline | 88,418 | 12,631 | 210,938 | 30,134 | 11,254,007 | 6,979,094 |
| Kerosene | 46,917 | 6,702 | ..... | ..... | 3,030,176 | 3,787,533 |

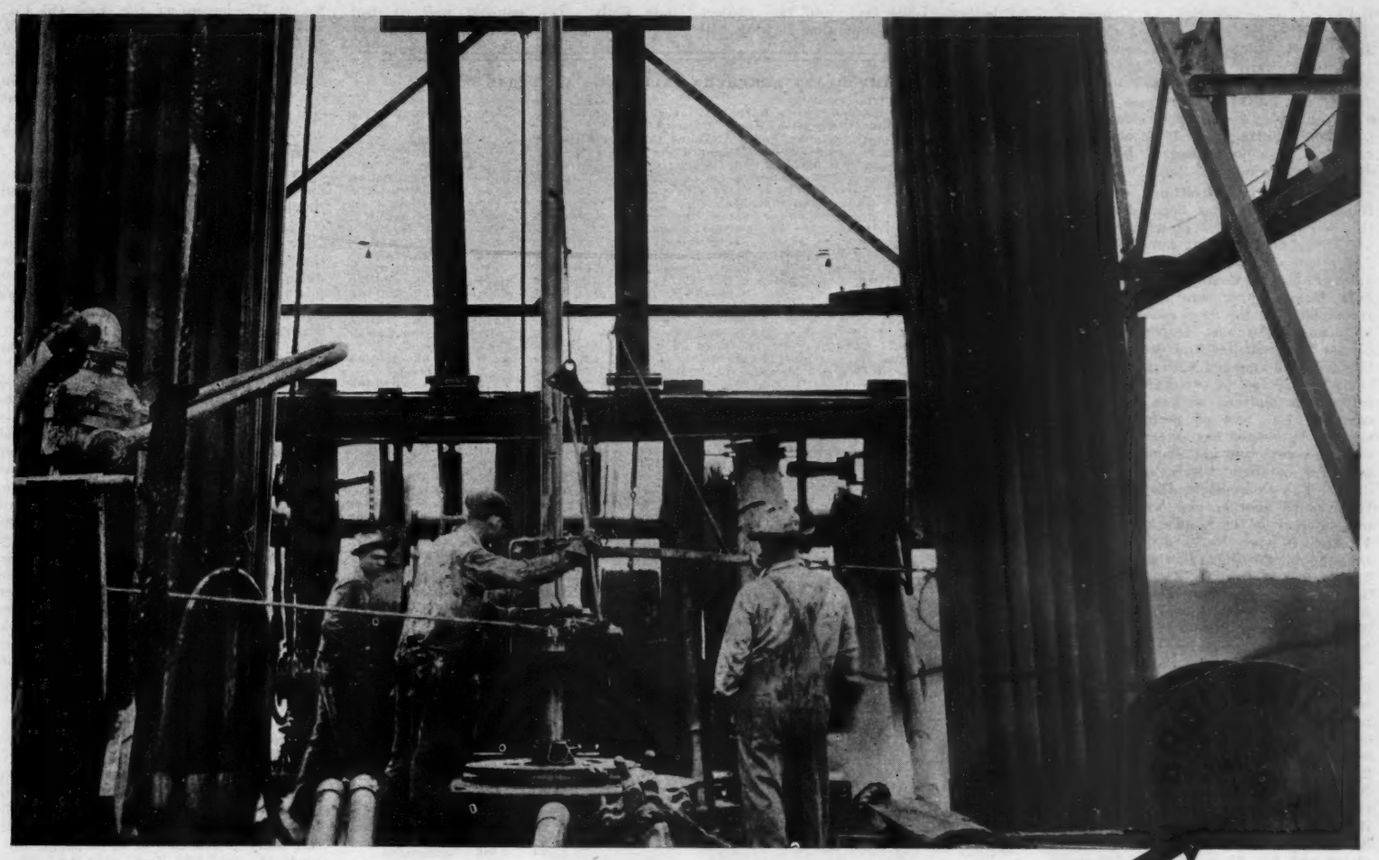
**TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF PORTS**

| | | | | | | |
|---|---|---|---|---|---|---|
| Diesel and gas oil | ..... | ..... | ..... | ..... | ..... | 418,188 |
| Gasoline | ..... | ..... | 66,398 | 9,485 | 2,275,638 | 2,077,540 |
| Lubricants | ..... | ..... | ..... | ..... | 138,706 | 277,151 |
| Coastwise— | | | | | | |
| Fuel oil | 166,010 | 23,716 | 31,788 | 4,541 | 2,996,387 | 3,350,275 |
| Diesel and gas oil | 5,466 | 781 | ..... | ..... | 366,004 | 279,197 |
| Gasoline | 102,180 | 14,597 | 132,016 | 18,859 | 4,907,574 | 4,582,094 |
| Kerosene | 5,888 | 841 | 7,993 | 1,142 | 205,284 | 224,643 |
| Exports— | | | | | | |
| Crude oil | ..... | ..... | ..... | ..... | 121,603 | 96,250 |
| Fuel oil | ..... | ..... | ..... | ..... | 841,631 | 2,222,314 |
| Diesel and gas oil | ..... | ..... | ..... | ..... | 393,132 | 56,180 |
| Gasoline | 98,050 | 14,007 | 179,581 | 25,654 | 5,263,308 | 4,012,706 |
| Kerosene | ..... | ..... | 96,120 | 13,731 | 624,180 | 718,523 |
| Lubricants | ..... | ..... | ..... | ..... | 29,795 | 33,535 |

### Santa Fe Springs

Daily production at Santa Fe Springs was considerably above the allowable production during the past week due to the completion of numerous new wells and former upper zone producers which were recompleted in the deep sand. George F. Getty headed the completion list by finishing four wells doing 17,586 bbls. initially. The largest of this quartet was No. 38, a new well which came in flowing 7,780 bbls. of clean 34.1 gravity oil daily from the lower Clarke zone at 8,138 feet. Getty's most important completion was No. 17 Nordstrum, which ccame in during the early part of the week flowing 7,496 bbls. of clean 33.9 gravity oil and 12,000,000 feet of saturated gas daily from 8,000 feet, the hole having been finished with a 3½-inch liner carrying 750 feet of perforated. The significance which attaches to the completion of this well lies in the fact that it was the first well finished in the Nordstrum zone and was responsible for the naming of this horizon. No. 17 Nordstrum has had a rather spectacular career dating back over more than a year. This well entered the spotlight for the first time on September 16, 1928, when it blew in out of control and immediately caught fire. The well burned for 48 consecutive days before being brought under control and it is estimated that approximately 10,000 bbls. of oil and 30,000,000 feet of natural gas were consumed by the fire every 24 hours. This fire was conquered and the well brought under control by constructing a tunnel and intercepting the oil string approximately 50 feet below the mouth of the well. The initial production of this, the first well to be finished in the Nordstrum horizon, was 6,000 bbls. of crude oil and 11,000,000 feet of natural gas during the 24-hour period after being brought under control. The two other





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wells put on production by George F. Getty during the current week were No. 28 Mitchell, which was recompleted doing 1,325 bbls. daily from 7,694 feet, and No. 36 Baker, which tanked 985 bbls. during the initial 24-hour test from 7,975 feet. No. 28 Mitchell blew in late last month during the course of a water test but was subsequently killed and drilling resumed.

The General Petroleum successfully finished three wells at Santa Fe Springs this week, the largest of which was No. 145-D Santa Fe which came in flowing 1,915 bbls. daily from 6,224 feet. No. 189-C Santa Fe Community and No. 114 Jalk, former upper zone producers, were recompleted in the deep zone doing 1,090 bbls. and 1,420 bbls. respectively. The former was redrilled and deepened to 7,920 feet and finished with a 3-inch liner carrying 220 feet of perforated, while the latter was finished with a 3-inch liner carrying 155 feet of perforated. The General Petroleum has several other wells nearing completion and should finish two or three of them within the next few days. The Commodore Oil Co. successfully added another new well to its list of producers on the Landle lease at Santa Fe Springs when No. 4, a new well, was brought in flowing 2,050 bbls. of clean 33.6 gravity oil daily from 7,972 feet. This company has two other wells nearing completion and both of them, No. 3 Babonett and No. 3 Landle, should be tanking oil soon.

The Richfield Oil Co. put two wells on production during the week, one of which, No. 3 Oscar Howard, was recompleted in the deep zone after being redrilled and deepened to 8,101 feet, from which depth it registered an initial of 2,525 bbls. of clean 35.1 gravity oil daily. No. 5 on the same lease, which came in flowing 3,360 bbls. of clean 34.1 gravity oil daily, was a new well finished at 8,103 feet. The Texas Company recompleted well No. 13 on Mattern Lease No. 3 doing 1,775 bbls. of clean 34.1 gravity oil daily and a check indicates the probable completion of several more within the next two weeks. The Universal Consolidated recompleted No. 10 Blanchard, a former upper zone producer doing 2,345 bbls. of clean 33.9 gravity oil and 1,200,000 feet of wet gas daily after redrilling and deepening it to the Clarke horizon at 7,850 feet. The General Petroleum, Shell, Standard, Union, Wilshire and The Texas Company are all expected to finish new wells during the coming week. One of the last wells finished this week was the Star Petroleum Co.'s No. 2, which came in flowing 975 bbls. daily upon recompletion at 6,250 feet. Oscar Howard has indefinitely suspended drilling operations on his No. 7 Hathaway at 9,035 feet and no further attempt will be made to develop commercial production, at least for the present.

### Long Beach

Daily production at Long Beach is down within striking distance of the maximum allowable production of 100,000 bbls. daily, in spite of the fact that completions during the past several weeks have been somewhat more numerous than heretofore. The Shell heads the production list at Long Beach with a current daily output of 22,000 bbls., followed by the Richfield with 11,000 bbls., Dabney & Johnston with 9,000 bbls., The Texas Company with 8,000 bbls., Union with 2,250 bbls., and the General Petroleum with 1,200 bbls. There were eight wells put on production in the Long Beach Field during the past week and this group boosted the daily production 5,038 bbls.

The best well finished this week was No. 3 Banks of the Graham & Loftus Oil Co., which tanked 1,245 bbls. during the initial 24 hours following completion at 7,655 feet. Otis Hoyt successfully finished two new wells, both of which were on about a par from a production standpoint. No. 5 Signal tanked 920 bbls. daily from 7,280 feet while No. 7 Signal was completed doing 918 bbls. daily from 6,962 feet. The Bell View Oil Syndicate successfully recompleted No. 1 Lewis after cleaning out the hole to bottom, 7,394 feet, and this project was returned to production flowing 810 bbls. daily. The smallest well finished in the Long Beach Field this week was No. 2 Windemore of the Axis Oil Co., which only showed an initial of 30 bbls. daily from 6,784 feet. The General Petroleum's No. 1 Fulton registered substantial production upon completion in the Miocene at 7,658 feet but the output 665 bbls. daily, showed an excessive water cut which may necessitate another cement job.

Donley & Barteau successfully completed their No. 1-A Signal, a new well flowing 185 bbls. of clean 31.6 gravity oil and 5,500,000 feet of wet gas daily from 6,756 feet. It is quite probable that the oil production of this new producer will subsequently build up after it has been on production for several days and as the output of natural gas declines. The Hancock Oil Co. successfully finished No. 11 Signal, a new well in the Long Beach Field during the past week, and this project showed an initial of 265 bbls. daily from 7,710 feet. The southeastern end of the Long Beach structure is still attracting operators and several new wells are scheduled to get under way soon. George F. Getty has just started rig construction for No. 28 Signal, a new project to be located in this area, and an early spud will be made. Getty's new well is only a short distance removed from the Petroleo Syndicate's No. 1 Meyer, a recent completion in the deep sand. The latter company recently spudded in No. 2 Meyer and is at the present time making hole at 711 feet. The State Co., credited with reviving interest in this section of the Long Beach Field, recently leased three additional drill sites for early work

### Midway-Sunset

Two new wells were finished in the Maricopa flats section of the Midway-Sunset Field during the past week and several more are scheduled for early completion. No. 4 Havenstrite of the California Western Oil Co., showed an initial daily production of 3,000 bbls. from a depth of 3,230 feet but the output of this new producer was pinched in to 1,500 bbls. because of conservation work. No. 5 Sheehan of the Signal Oil & Gas Co. was completed flowing 440 bbls. of clean 27.7 gravity oil daily from 3,485 feet. Both the California Western Oil Co. and the Signal Oil & Gas Co. have started additional development. Other operators are also increasing drilling operations and a consistent development program has been mapped out for the next several months. The Standard, North American Consolidated, Rio Grande, Hancock, Doyle Petroleum and others are expected to list new completions within the very near future.

In the older section of the Midway-Sunset Field, the Union Oil Co. completed No. 1 Williams, a new well pumping 250 bbls. daily from 2,888 feet. This well opens up a new productive area around the edge of the field. The Shell has successfully added another new well to its list of producers in the Round Mountain Field of Kern County resulting from the completion of No. 5 Freeman, which showed an initial of 250 bbls. daily from 1,590 feet. In the Mount Poso Field, the Vedder Brothers finished No. 1 Johnson in Section 28-26-28, doing 100 bbls. daily from 1,525 feet. The Union and Petroleum Securities are also scheduled to finish new wells in this area shortly. The General Petroleum finished No. 11 Whetmore, a new well located out on the west front area of the Kern River Field, but it was shut in immediately upon completion at 2,041 feet, from which depth it showed a potential of 125 bbls. daily. In the Belridge Field of Kern County, the Ohio Oil Co. finished No. 33 in Section 30-28-21, pumping 18 bbls. daily from an even 700 feet, the hole having been finished with an 8¼-inch liner carrying 55 feet of perforated.

### Elwood

The Barnsdall and Rio Grande successfully completed another new well in the prolific Elwood Field of Santa Barbara County this week and should finish another satisfactory completion within the next day or two. No. 9 Bell Luton, the latest completion chalked up,

(Continued on Page 116)

### IMPORTANT NORTHERN CALIFORNIA WILDCATS

| Company, well and location— | S-T-R | Depth | Status |
|---|---|---|---|
| Union, No. 1 Buel Canyon, Santa Barbara | X- 7-31 | 2,450 | br. sh. drilling |
| Standard, No. 1 Point Conception, Santa Barbara Co. | X- 5-34 | 2,870 | hd. sd. drilling |
| Standard, No. 1 Point Arguello, Santa Barbara Co. | 35- 6-36 | 2,310 | fishing |
| Gaviota Oil Co., No. 1 Lompoc, Santa Barbara Co. | 9- 7-35 | 2,677 | suspended |
| Calif. Oil Prop., No. 1 San Marcos, Santa Barbara Co. | 3- 4-28 | 3,745 | sespe-drilling |
| Carey, A., No. 1 Goleta, Santa Barbara Co. | 1- 4-28 | 1,790 | hd. sd. drilling |
| General Pet., No. 1 Goleta, Santa Barbara Co. | 21- 4-28 | 4,533 | gas well, idle |
| General Pet., No. 2 Goleta, Santa Barbara Co. | 21- 4-28 | 2,891 | redrilling |
| General Pet., No. 1 Goleta Tideland, Santa Barbara Co. | 21- 4-28 | mtl. | port. equip. |
| General Pet., No. 2 Goleta Tideland, Santa Barbara Co. | 21- 4-28 | mtl. | port. equip. |
| General Pet., No. 3 Goleta Tideland, Santa Barbara Co. | 21- 4-28 | mtl. | port. equip. |
| General Pet., No. 4 Goleta Tideland, Santa Barbara Co. | 21- 4-28 | mtl. | port. equip. |
| General Pet., No. 5 Goleta Tideland, Santa Barbara Co. | 21- 4-28 | mtl. | port. equip. |
| Standard, No. 2 Goleta, Santa Barbara Co. | X- 4-29 | 1,295 | sd. sh. drilling |
| Tannehill, L. B., No. 1 Goleta, Santa Barbara Co. | 24- 4-29 | 4,450 | sd. sh. drilling |
| McGee., Omar., No. 1 Goleta, Santa Barbara Co. | 12- 4-29 | Rig | suspended |
| Standard, No. 1 County Farm, Santa Barbara Co. | 11- 4-28 | 1,816 | sd. sh. drilling |
| Oakburn Oil Co., No. 1 Capitan, Santa Barbara Co. | 4- 4-30 | mtl. | driving pipes |
| Shell Oil Co., No. 1 Capitan, Santa Barbara Co. | 4- 4-30 | mtl. | grading |
| Fields Gasoline Co., No. 1 Orcutt, Santa Barbara Co. | 36-10-34 | 5,000 | br. sh. drilling |
| Keystone Oil Co., No. 1 Santa Maria, Santa Barbara Co. | 33-10-34 | 4,250 | suspended |
| Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co. | 20-10-35 | 3,875 | br. sh. drilling |
| Pacific Western, No. 1 Gibraltar, Santa Barbara Co. | 14- 5-27 | 1,910 | sd. sh. drilling |
| Gilmore Oil Co., No. 1 Gibraltar, Santa Barbara Co. | 1- 5-28 | Rig | rigging up |
| Shell, No. 1 Summerland, Santa Barbara Co. | 18- 4-25 | 1,170 | hd. sd. drilling |
| Standard, No. 1 Casitas, Santa Barbara Co. | 26- 4-25 | .... | grading |
| Casper, R. W., No. 1 Carpenteria, Santa Barbara Co. | 32- 4-26 | mtl. | building rig |
| Continental, No. 1 Carpenteria, Santa Barbara Co. | 33- 4-26 | 4,130 | gas well, idle |
| Continental, No. 2 Carpenteria, Santa Barbara Co. | 33- 4-25 | mtl. | building rig |
| McDonald, Geo. A., No. 1 Carpenteria, Santa Barbara Co. | 33- 4-25 | mtl. | building rig |
| Standard, No. 5-9 Saticoy, Ventura Co. | 10- 2-22 | 8,360 | br. sh. drilling |
| Bolsa Chica, No. 1-A Temescal, Ventura Co. | 4- 4-18 | 1,300 | br. sh. drilling |
| Associated, No. 1 Rincon, Ventura Co. | 19- 4-24 | Rig | rigging up |
| Miley, E. J., No. 2 Casitas, Ventura Co. | 7- 3-23 | 1,870 | suspended |
| Frank Oil Co., No. 1 Fillmore, Ventura Co. | 35- 4-20 | 2,168 | suspended |
| Continental, No. 3 Sulphur Mountain, Ventura Co. | 21- 4-22 | 5,730 | fishing |
| Lockwood Oil Co., Well No. 1, Ventura Co. | 28- 8-81 | 682 | suspended |
| Milham Explt'n., No. 1-A Buttonwillow, Kern Co. | 8-28-23 | 4,662 | prep. for prod. |
| Milham Explt'n., No. 2 Buttonwillow, Kern Co. | 8-28-23 | 2,730 | prep. for prod. |
| Milham Explt'n., No. 3 Buttonwillow, Kern Co. | 8-28-23 | 2,694 | prep. for prod. |
| Milham Explt'n., No. 4 Buttonwillow, Kern Co. | 6-28-23 | 2,670 | prep. for prod. |
| Milham Explt'n., No. 5 Buttonwillow, Kern Co. | 5-28-23 | 2,500 | prep. for prod. |
| Milham Explt'n., No. 6 Buttonwillow, Kern Co. | 8-28-23 | 2,676 | prep. for prod. |
| Milham Explt'n., No. 7 Buttonwillow, Kern Co. | 6-28-23 | 2,720 | suspended |
| Milham Explt'n., No. 8-A Buttonwillow, Kern Co. | 8-28-23 | 2,673 | prep. for prod. |
| Milham Explt'n., No. 9 Buttonwillow, Kern Co. | 8-38-23 | 4,912 | redrilling |
| Milham Explt'n., No. 10 Buttonwlliow, Kern Co. | 8-28-23 | 2,672 | suspended |
| Elmer Oil Co., No. 1 Bena, Kern Co. | 15-30-30 | 3,800 | hd. sd. drilling |
| Elmer Oil Co., No. 1-A Rosedale, Kern Co. | 33-29-26 | 5,260 | suspended |
| General Pet., No. 1 Rosedale, Kern Co. | 23-29-26 | 4,825 | hd. sd. drilling |
| The Texas Company, No. 1 Edison, Kern Co. | 23-29-29 | 3,750 | sd. sh. drilling |
| Symark Oil Co., No. 1 Edison, Kern Co. | 24-29-29 | 2,130 | suspended |
| McVey, Max., No. 1 Jasmine, Kern Co. | 23-25-27 | Rig | idle |
| Shell Oil Co., No. 1 Lerdo, Kern Co. | 5-29-27 | 6,190 | hd. sd. drilling |
| Union, No. 2 San Emidio, Kern Co. | 5-10-21 | 3,690 | redrilling |
| Mallery, Willard, No. 1 San Emidio, Kern Co. | 9-10-23 | 550 | hd. sd. drilling |
| Bubank, E., No. 1 San Emidio, Kern Co. | 11-10-24 | .... | location |
| Currency Pet. Co., No. 1 Jacalitos, Fresno Co. | 28-21-14 | 2,606 | suspended |
| Knudsen, John, No. 1 Jacalitos, Fresno Co. | 14-21-14 | 920 | bl. sd. drilling |
| Rio Grande Oil Co., No. 1 Kerman, Fresno Co. | 14-13-17 | 4,110 | sd. sh. drilling |
| Petroleum Securities, No. 2 Huron, Fresno Co. | 28-20-16 | 6,828 | cleaning out |
| Western Gulf, No. 1 Penoche Valley, Fresno Co. | 26-15-12 | .... | grading |
| Union, No. 1 Huasna, San Luis Obispo Co. | 34-32-15 | 4,198 | br. sh. drilling |
| Union, No. 1 North Huasna, San Luis Obispo Co. | 12-32-14 | 4,980 | gr. sh. drilling |
| Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co. | 34-31-15 | 2,212 | cleaning out |
| Panorama Oil Co., Well No. 1, San Luis Obispo Co. | 7-31-21 | 4,019 | cleaning out |
| Paso Robles Synd., No. 1 Creston, San Luis Obispo Co. | 27-27-11 | 3,742 | suspended |
| Latin American, No. 1 Shandon, San Luis Obispo Co. | 31-27-15 | 3,990 | gr. sh. drilling |
| Colusa Oil Co., Well No. 1, Colusa Co. | 31-15- 4 | 700 | suspended |
| Foster & Hammil, Well No. 1, Alameda Co. | 21- 3- 3 | 1,172 | suspended |
| Shell, No. 1 Dudley, Monterey Co. | 15-22- 9 | 5,306 | sd. sh. drilling |
| Chessher, H. B., No. 1 Dudley, Monterey Co. | 21-22- 9 | 245 | suspended |
| Union, No. 1 King City, Monterey Co. | 8-22- 8 | 2,515 | br. sh. drilling |
| Standard, No. 1 King City, Monterey Co. | 23-22- 7 | 2,875 | br. sh. drilling |
| Pacific Inland Oil Co., No. 1 Parkfield, Monterey Co. | 19-23-15 | Rig | rigging up |
| Penn Western, No. 1 Tulare Lake, Kings Co. | 24-21-18 | 1,338 | set pipe |
| Dudley Ridge Synd., No. 1 Tulare, Kings Co. | 12-23-19 | 1,305 | gas, shut in |
| O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co. | 7-23-20 | 1,882 | cemented |
| Porter, H. B., No. 1 Devils Den, Kings Co. | 9-24-17 | 2,420 | br. sh. drilling |
| Getty, Geo. F., No. 1 Dutton, Madera Co. | 18-13-16 | 3,350 | sd. sh. drilling |
| Twin State Oil Co., No. 1 Soldani, Mendocino Co. | 14-12- 7 | 1,680 | sd. sh. drilling |
| Elmer Oil Co., No. 1 Timbers, San Joaquin Co. | 6- 3- 9 | .... | location |
| Barnhart Trust, No. 1 Oakdale, San Joaquin Co. | 3- 2-10 | 2,453 | sd. sh. drilling |
| White, Roy, No. 1 Pixley, Tulare Co. | 8-23-26 | 3,377 | suspended |
| Terminal Oil Co., No. 1 Tulare, Tulare Co. | 29-20-25 | 4,198 | br. sh. drilling |
| Terra Bella Oil Co., No. 1 Porterville, Tulare Co. | 36-22-27 | 270 | sd. drilling |

### IMPORTANT SOUTHERN CALIFORNIA WILDCATS

| Company, well and location— | S-T-R | Depth | Status |
|---|---|---|---|
| Ohio Oil Co., No. 1 Del Rey, Los Angeles Co. | 21- 2-15 | 6,199 | recemented |
| Marblehead Land Co., No. 1 Santa Monica, Los Angeles Co. | 1- 2-19 | 2,158 | sd. sh. drilling |
| Clearwater Oil Co., No. 1 Bellflower, Los Angeles Co. | 21- 3-12 | 2,094 | sd. sh. drilling |
| Continental, No. 1 Alamitos, Los Angeles Co. | 34- 4-12 | 4,970 | hd. sd. drilling |
| Burlingham Pet., No. 1 Compton, Los Angeles Co. | 17- 3-13 | 2,204 | cleaning out |
| Big Boy Drlg. Co., No. 1 Compton, Los Angeles Co. | 22- 3-15 | mtl. | building rig |
| Consolidated Explt'n. Co., No. 1 Compton, Los Angeles Co. | 21- 3-13 | 3,150 | sd. sh. drilling |
| Hanners, George, No. 1 Watts, Los Angeles Co. | 8- 3-13 | 3,655 | sd. sh. drilling |
| Diller, W., No. 1 Watts, Los Angeles Co. | 8- 3-17 | Rig | rigging up |
| Cal. Well Drlg. Co., No. 1 Compton, Los Angeles Co. | 11- 4-13 | 8,500 | recemented |
| Archer Oil Co., No. 1 Watson, Los Angeles Co. | 17- 4-13 | 4,721 | oil sand |
| Harbor Oil Co., No. 1 Watson, Los Angeles Co. | 17- 4-13 | .... | material |
| Russell Oil Co., No. 2 Joughin, Los Angeles Co. | 22- 3-17 | 2,418 | suspended |
| Pomona Oil Co., Well No. 1, Los Angeles Co. | 32- 1- 8 | 1,220 | cleaning out |
| Anchor Oil Co., No. 1 Fuente, Los Angeles Co. | 19- 2-10 | 4,820 | suspended |
| Rucker, R. C., No. 1 Fuente, Los Angeles Co. | 27- 2-10 | 2,950 | sd. sh. drilling |
| The State Co., No. 1 Fuente, Los Angeles Co. | 5- 2-10 | 2,800 | gr. sd. drilling |
| Keck & Hall, No. 1 Puente, Los Angeles Co. | 32- 2- 8 | 691 | some oil |
| Urmi Oil Co., No. 1 Puente, Los Angeles Co. | 31- 2- 8 | 1,511 | suspended |
| Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co. | 16- 1-11 | 1,513 | hd. sd. drilling |
| Union Oil Co., No. 1 Richfield, Los Angeles Co. | 13- 3- 9 | 2,000 | br. sh. drilling |
| Superior Oil Co., No. 1 Richfield, Los Angeles Co. | 32- 3- 9 | 4,162 | suspended |
| Coastline, No 1 Devils Canyon, Los Angeles Co. | 21- 5-17 | 2,085 | gr. sd. drilling |
| Olympic Corp., No. 1 Calabasis, Los Angeles Co. | 18- 1-17 | mtl. | building rig |
| Martin, J. W., No. 1 Newhall, Los Angeles Co. | 22- 1-17 | 788 | gr. sd. drilling |
| Consolidated Oil Co., No. 1 Newhall, Los Angeles Co. | 22- 3-16 | 550 | hd. sd. drilling |
| Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co. | 1- 3-16 | 699 | hd. sd. drilling |
| Shell, No. 1 Bolsa, Orange Co. | 18- 5-11 | 2,618 | hd. sd. drilling |
| Shell, No. 1 Coyote, Orange Co. | 28- 3-10 | 6,050 | redrilling |
| Standard, No. 1 Coyote, Orange Co. | 21- 3-10 | 3,000 | sd. sh. drilling |
| Union, No. 1 Coyote, Orange Co. | 30- 2-10 | 75 | sd. drilling |
| Beard, G. F., No. 1 Brea Canyon, Orange Co. | 30- 2- 9 | 1,199 | br. sh. drilling |
| Western Gulf, No. 1 Brea Canyon, Orange Co. | 28- 2- 9 | mtl. | building rig |
| Mesa Pet., No. 1 Newport, Orange Co. | 21- 6-10 | 4,400 | set plug |
| Oil Well Eng. Co., No. 1 Newport, Orange Co. | 21- 6-10 | 2,795 | suspended |
| Oil Well Eng. Co., No. 2 Newport, Orange Co. | 21- 6-10 | mtl. | suspended |
| Hall Pet. Co., No. 1-A Murrietta, Riverside Co. | 23- 7- 3 | 701 | cemented |
| Hemet Pet. Co., No. 1 Ward, Riverside Co. | 9- 5- 1 | 3,403 | suspended |
| Imperial Valley Oil Co., Well No. 1 Imperial Co. | 32-11-10 | 2,980 | suspended |
| Turner, S. S., No. 1 Escondido, San Diego Co. | 25-12- 2 | 3,005 | sd. sh. drilling |
| McGregor Synd., No. 1 Del Mar, San Diego Co. | 17-14- 3 | 1,070 | sd. sh. drilling |
| Borderland Oil Co., No. 1 Encinitas, San Diego Co. | X-13- 4 | 1,100 | sd. sh. drilling |
| Grey, H. H., No. 1 Redlands, San Bernardino Co. | 25- 1- 2 | 2,455 | hd. sd. drilling |
| Duncan, N. I., No. 1 Mojave, San Bernardino Co. | 8- 4- 6 | Rig | rigging up |

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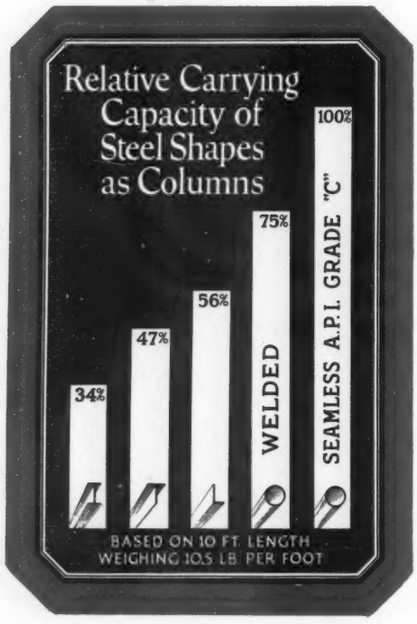


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*Stocks in All Principal Fields*

# Andrews County May Have New Pool

## Rank Wildcat Possible Opener of New Field of Major Importance in Permian Basin. Pay Cannot Be Correlated

By L. E. Bredberg
*Fort Worth Bureau, The Oil and Gas Journal*

FORT WORTH, Tex., Dec. 9.—Another oil pool loomed on the horizon of the Permian Basin this week when a rank wildcat in Andrews County topped a sandy lime pay and started filling with oil, drawing attention from the new Van area in East Central Texas and the various pools in West Texas to this new possible area where there has been but little exploration heretofore. The nearest production to this test is many miles to the west in the Hobbs area of New Mexico and the fields in Winkler County to the southwest, and the pay in Andrews County evidently cannot be correlated with other pay horizons in the basin.

This test is owned by the Deep Rock Oil Co. and is 2,310 feet from the east and 330 feet from the south lines of Section 6, Block A-46, Public School Lands. It is now shut down with intentions of being straightreamed to set 6-inch casing. The last casing, 8¼-inch, was set at 3,250 feet.

The oil pay was encountered at 4,345 feet and the test shut down at 4,348 feet, the hole filling 700 feet in 10 hours, and the gas increasing to about 2,500,000 feet. The first gas was struck at 2,910-25 feet, but this decreased as the well was drilled down, and the first oil showing was found from 4,305-09 feet. Last reports on the well give it as standing with about 3,000 feet of oil in the hole, but the bailer has not been run during the last day and this is no doubt only an estimate. This test is on the Ogden farm about a mile and a quarter northwest of the Deep Rock Oil Co.'s No. 1 Harris in Section 12. It topped the salt at 1,705 feet and the lime at 4,005 feet, being abandoned as a dry hole at 4,688 feet after it bailed 5 bbls. of 30 gravity oil from pay found from 4,405-10 feet. Top of the lime in the Ogden well was found at 4,050 feet, the salt at 1,735 feet and the elevation on the surface is 3,206 feet. It appears to be running about 19 feet higher than the Harris well, and with the amount of oil that has come up the hole, the test looks as if it may open up another field of major importance in the Permian Basin.

Another test drilled in this area was the Maer and others' test on the Taylor ranch in the center of the SE of Section 15, Block A-42, about 6 miles to the southwest. This test was abandoned as dry at the total depth of 4,206 feet.

One mile to the north of the Ogden well university lands start, so it looks as if the university would again have lands to help fill the coffers of the state institution with money from royalties on acreage in Block 4 and 13, for if a pool is really opened in this area it no doubt will extend to the north for some distance.

### New Deep Test at Big Lake

Another interesting item comes from West Texas in the form of a possibility of another deep test in the Big Lake Pool in Reagan County. This test is in Section 10, Block 2, on the extreme northwestern edge of the pool, some distance from production, and although the Big Lake Oil Co. intends to drill to only around 3,000 feet for the present, it will be prepared to go deeper if the company later deems it advisable to drill it to the deep pay, below 8,000 feet. The number of this well is 179 University, and is to be 660 feet from the south and east lines of the section.

The Big Lake Oil Co.'s No. 3-C, the first deep test it brought in on its acreage in the pool, seems to be decreasing daily in both oil and gas, making less than 100 bbls. daily. The company's No. 4-C, the last deep test brought in, is also decreasing in gas, but is holding up in oil production, making better than 400 bbls. daily.

### Pecos County Wells

In Pecos County, Cranfill & Reynolds' No. 1 Masterson, in Section 104, Block 10, H.&G.N. Survey, is holding up around 20 bbls. daily average. Top of the biggest pay and total depth is 1,439 feet. The oil is 32 gravity.

The Texas Company and others' No. 1 Campbell, in Section 46, Block 10, H.&G. N. Survey, was drilled to 2,504 feet, and flowed sulphur water from 2,430 feet, consequently it was plugged back to 1,775 feet and shot with 60 quarts from 1,699-1,749 feet. While cleaning out the well and swabbing it made 32 bbls. in 24 hours, and the owners are now putting it on the pump to test. Top of the oil and gas pay was found from 1,710-35 feet. The well has caused the owners much time and energy trying to produce it, and as it now stands it looks as if it might make a small producer after all.

Another failure was chalked up against the Rowan and Tong area this week when Landreth Production Co.'s No. 1-B McDonald, 330 feet from the south and west lines of Section 40½, Block 12, H.&G.N. Survey, was abandoned at 1,670 feet.

### Air Lift in Taylor-Link

The Landreth Production Co. has been trying air lift on some of its wells in the Taylor-Link area, and finding that it checks the decline when the wells start to slump off. Tests are made on different wells on two or three-day intervals, and it was found the wells tested on air decreased when taken off of the lift. Tubing is to be run in the company's Nos. 3-A, 3-G, 1-F, and 2-F and these wells tested on the air lift. Air lift will probably be used all over the field by the different operators and companies owning production, if it proves successful in curbing the decline in the wells tested on the Landreth acreage. It will be the first new pool to use air lift in West Texas, the others holding up in production in flow or pumping for a greater length of time before starting to slump off in production.

An interesting test is starting just north and west of the Taylor-Link Pool in Pecos County, in Section 7, Block 20, 1,660 feet from the north line and 1,314 feet from the west line of the Section, on the World Oil Co.'s "C" lease. It is about 2 miles northwest of the Transcontinental Oil Co.'s No. 1 University, in the SW, Section 18, Block 18, which is now drilling below 4,700 feet. Elevation of the World test is 2,614 feet, and the well will probably be drilled to 5,000 feet.

### WEST TEXAS PRODUCTION
**Week Ending December 7**

| County— | No. wells | Bbls. |
|---|---|---|
| Crane County | 322 | 34,980 |
| Crockett County | 46 | 1,575 |
| Ector County | 4 | 85 |
| Fisher County | 7 | 1,400 |
| Glasscock and Howard | 447 | 39,300 |
| Jones County | 73 | 2,415 |
| Loving County | 16 | 910 |
| Mitchell County | 142 | 2,525 |
| Pecos County | 383 | 145,010 |
| Reagan County | 253 | 17,300 |
| Runnels County | 3 | 27 |
| Scurry County | 5 | 20 |
| Upton County | 244 | 9,296 |
| Ward County | 18 | 2,005 |
| Winkler County | 599 | 98,445 |
| Total this week | 2,562 | 355,292 |
| Total last week | 2,552 | 359,993 |
| Difference | 10 | 4,701 |

### Shipley Pool

Shell Petroleum Corp.'s No. 1 Owens in Section 16, Block 5, H.&T.C. Survey, in the Shipley Pool, Ward County, is drilling below 2,945 feet in lime with 1,500 feet of fluid in the hole. While it was shut down for two weeks it swabbed and bailed intermittently yielding a total of 307 bbls. of net oil from pays encountered at 2,485, 2,556-93 and 2,909 feet. These pays are all below the regular Shipley pay found in the discovery well and other wells producing in this pool, and it is believed the Shell well has opened up possible production from the deeper horizon, paving the way for deeper drilling, and for carrying the present producers to the deeper pay when they slump off in production.

Gulf Production Co.'s No. 7 O'Brien in Section 22, Block F, G.M.M.B.&A. Survey, northern Ward County, is cleaning out at total depth of 2,756 feet. Top of the pay in this well was found at 2,622 feet and the well swabbed 45 bbls. of oil in the 24 hours ending at 7 a. m. on December 8. Gravity of this oil is 34.9.

### Howard-Glasscock Output

The pipe line companies have elected to take 27,774 bbls. daily from the Howard-Glasscock County Fields for the month of December. Potential of the 2,200 and 3,000-foot pay horizons was 56,262 bbls. daily, with a few of the wells yet to be gauged and added to this amount. November runs for these pools totaled 911,488 bbls. from 134 wells. These figures are for the pay horizons below the 1,800-foot level only, and do not take in production from the shallow producers.

Total production for Winkler County for the month of November was 3,112,583 bbls., a decrease of 597,143 bbls. from October's total.

The Cosden Pipe Line Co. and Shell Pipe Line Co. will each take 8,000 bbls. daily from the Howard-Glasscock County fields, the Humble Pipe Line Co. will take 6,000 bbls., Magnolia 2,000 bbls., Great Western, Big Spring Pipe Line Co. and Col-Tex Refining Co., 3,744 bbls. In October Cosden took 13,014 bbls., Humble 6,395 bbls., Shell 7,945 bbls., Magnolia 1,603 bbls., Great Western 3,704 bbls., Big Spring 1,647 bbls. and Col-Tex 906 bbls., but December runs are cut materially.

The Yates Field, Pecos County, produced 3,868,338 bbls. in November, a daily average of about 128,940 bbls., exclusive of the seepage oil which was picked up by the different companies on the southeastern edge of the field. This salvage oil amounted to 174,300 bbls.

In the fore part of the week Bashara's No. 2 fee in Section 17, just east of its No. 1 fee, a 19,430,000-foot gasser from pay at 2,477-81 feet, had a gas blowout at 1,360 feet and the well was shut down. This is no doubt just a small pocket, and does not signify anything of much importance, but due to the first well producing gas, and this showing being made, the test started in Section 26, Block B-3, and standing shut down at 400 feet for several months, might be revived and the owners drill down to test that section to the west of the Bashara gasser. It is understood the Simms Oil Co. purchased an interest in some acreage in the Kermit Townsite, and it is possible that company will drill a test in this area.

### Jones County Showing

Jones County had another good showing of oil in the Hawley area when Shaheen's No. 1 King in Section 197, Subdivision 12, M. Bueno Survey, topped a sand at 2,061 feet and encountered a good showing of black oil which tested 36 gravity. Due to the cavings in the hole it was difficult to determine just how much of a showing was made, but it is believed there is about 300 feet of oil in the hole. The pay corresponds to that found in the King wells a few miles to the south.

### WEST TEXAS PRODUCTION
**Week ending December 7**

### Crane County

Church & Fields' No. 4 University, located 2,310 feet from south, 990 feet west of Section 39, Block 30, topped the salt at 1,025 feet, topped lime at 2,750 feet, topped the pay at 2,863 feet, was drilled to a total depth of 2,998 feet and had an initial production of 1,214 bbls. Humble Oil & Refining Co.'s No. 2-D University, located 2,310 feet from north and 990 feet west of Section 34, Block 30, topped the salt at 1,117 feet, topped the lime at 2,858 feet, topped the pay at 3,030 feet, was drilled to a total depth of 3,090 feet and had an initial production of 100 bbls. The Texas Company's No. 2 University-Beasley, located 2,310 feet from south and 330 feet west of Section 46, Block 30, topped the salt at 1,000 feet, topped the lime at 2,725 feet, topped the pay at 2,850 feet, was drilled to a total depth of 3,000 feet and had an initial production of 227 bbls. Tidal Oil Co.'s No. 2-I University had an initial production of 266 bbls. in 14 hours at 2,780-2,960 feet.

### Glasscock County

Sun Oil Co.'s No. 4 Phillips, located 990 feet from east and 330 feet south

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## WILDCAT OPERATIONS IN WEST TEXAS

**Week Ended December 9**

**ANDREWS COUNTY**

| Company, farm and location— | Remarks— |
|---|---|
| Deep Rock's No. 1 Ogden, 2,310 ft. E, 330 ft. S, Sec. 6, Blk. A-46, Public School Land | Top pay 4,345 ft.; 700 ft. oil in hole; top lime 4,050 ft.; shut down 4,348 ft.; to run casing. |

**BORDEN COUNTY**

| | |
|---|---|
| Moncrief et al's No. 1 Munger, C of SW, Sec. 14, Blk. 31 | Drlg. by tools 2,425 ft. |
| Texas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur. | Top salt 1,030 ft.; drlg. 3,913 ft. |

**BREWSTER COUNTY**

| | |
|---|---|
| E. W. Bateman et al's No. 2 Nevill, 2,000 ft. S and W line of Sec. 62, Blk. 13, G.H.&S.A.R.R. Sur. | Drlg. 2,470 ft. |
| Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. | Fishing 1,935 ft. |
| Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur. | Set 8-in. 1,550 ft.; shut down 2,000 ft. |
| Forrest Oil Co.'s No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur. | Shut down 330 ft. |
| Grastorf et al's No. 1 Redfield, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.&S.F.R.R. Sur. | Spudding. |
| J. M. Hickey's No. 1 Jackson & Harmon, NE cor., Sec. 183, Blk. 9, G.H.&S.A. Sur. | Shut down 1,302 ft. |

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# Gray County Has Three Big Producers

## Curtailment Extended 60 Days. Albany and Cisco May Have Town Lot Drilling. Coleman County Active

By L. E. Bredberg
*Fort Worth Bureau, The Oil and Gas Journal*

FORT WORTH, Tex., Dec. 9.—Three large wells in Gray County did not bring the daily average of that county above the danger point in overproduction this week for it remained down to 61,500 bbls., showing that compulsory proration is not needed at the present for this area, and that voluntary curtailment of production and drilling is succeeding in its practice. The voluntary limitation has been extended for 60 days, and the operators will meet again about February 1, 1930, to discuss the situation and plan for future curtailment if needed. Possibly by that time, flush production will have fallen off decidedly and drilling of the tests now shut down in the pay may be resumed, and the wells completed.

This week three big wells were completed, two of them having been held on top of the pay for quite a length of time, pending adjustment of conditions to warrant their completion. One of these was the Phillips Petroleum Co.'s No. 6 Palmer, in the NE cor., Section 31, Block B-2, H.&G.N. Survey. It topped the first granite wash pay from 2,805-35 feet and the second from 2,860-65 feet. The first 24-hour gauge showed it to be a 4,755-bbl. well. It is now flowing 200 bbls. hourly with 25,000,000 feet of gas.

The Texas Company had previously given notice it would drill in its Nos. 3 and 5 Combs-Worley which have been shut down on top of the pay for some time, and No. 3 was completed at a total depth of 2,765 feet flowing 725 bbls. the first 24 hours, 2,085 bbls. the second 24 hours and now flowing 150 bbls. per hour, increasing each day. It topped the granite wash pay at 2,763 feet and was drilled in only 2 feet. It is in the SE cor., Section 36, Block 3, I.&G.N. Survey. The company's No. 5 Combs-Worley in Section 36, Block 3, I.&G.N. Survey, topped the granite wash pay from 2,840-45 feet and flowed 1,420 bbls. the first 24 hours and 4,275 bbls. the second 24 hours. It is now flowing at the rate of 200 bbls. per hour.

### Cochran County Tests

In Cochran County in the Panhandle district, the Continental Oil Co. plugged its No. 1-A Slaughter in Section 130, Carson County School Lands. This well created considerable excitement over a month ago when it hit a showing of gas from 4,745-50 feet and an oil pay at 4,873-88 feet from which it swabbed 65 bbls. of oil. But this pay was drilled through and the test went to 5,001 feet before it was plugged back to 4,900 feet. It was shot on October 12 with 80 quarts from 4,860-75 feet and filled up 2,000 feet oil and 500 feet sulphur water. The second shot on October 19 with 40 quarts from 4,790-4,800 feet had no results and the third shot with 150 quarts on October 26 from 4,735-70 feet had no results, consequently the company decided to abandon.

It was in absolute wildcat territory and therefore created much interest when it encountered the showing of oil. More tests will no doubt be drilled in this area later to seek a better paying formation.

Shell Petroleum Corp. and Fain-McGaha Corp. are still striving to complete their No. 1 French in the Tarver area of Foard County for a commercial producer, and this week's results look better than any previous showing. It encountered saturated lime from 2,007-21 feet, was shot once with 40 quarts and once with 85 quarts, and the machine burned. After the second shot it flowed 25 bbls. in two hours and swabbed 40 bbls. in four hours, so looks as if it was really going to make some kind of a well, although probably not a too substantial one. It is now being cleaned out 160 feet off bottom.

Carson County gained another gasser this week in Stubblefield's No. 1 Garner, which is 330 feet from the south and east lines of Section 104, Block 4. It was drilled to a total depth of 3,095 feet, but was plugged back to 2,850 feet and shot with 80 quarts from 3,000-70 feet, and a second shot given it with 230 quarts from 2,335-2,695 feet. Initial production was given as 7,000,000 feet of gas.

### Portwood Area

In the new Portwood area of Baylor County the Consolidated Oil Co. completed its second well for an initial production of 20 bbls. from pay encountered from 1,393 and 1,413 feet. Total depth was 1,423 feet. Grisham and Barnsdall Oil Corp.'s No. 1 Portwood was completed as a much better well for an initial production of 95 bbls. from pays found at 1,375, 1,388 and 1,398 feet. Total depth of this well is 1,402 feet.

Throckmorton County registered a small producer in Shappell Oil Co.'s No. 5 Upshur County school lands, in the NW cor. of Lot 27, J. F. Crittenden Subdivision. The oil sand was found at 1,245 feet and the hole bottomed at 1,259 feet, the well estimated good for 25 bbls. on pump. There is no pipe line connection to this well and it will probably be shut in for storage or a connection.

On the eastern outskirts of Albany, where Hart and Gist completed the discovery well in this area on the Clark ranch, there have been two dry holes drilled. No. 2 Clark on the east was abandoned at a total depth of 888 feet and Hart and Gist's No. 1 Deats, to the north at a total depth of 708 feet. Callahan is drilling a test to the west, in the direction of Albany, and this test will no doubt prove whether the pool is to run to the west and whether the town of Albany will see town lot drilling. Another test is drilling to the southeast, and it is possible that the Tannehill sand may be found in that direction and the well prove a producer.

The discovery well was completed at a total depth of 682 feet and is good for about 200 bbls. daily, but there is yet no pipe line connection to the well, and but little storage to accomodate the well being pumped.

### Cisco District

South of the Bearman discovery well on the Kincaid farm, just a mile north of the town of Cisco in Eastland County, Pete Hoffman is rigging up on a test on the Paschall farm. This test may tell if Cisco will see townsite drilling, or may prove production to run in other directions from the Bearman discovery. The Humble Pipe Line Co. is taking the oil from the Bearman well which is flowing around 205 bbls. daily. Two other locations have been staked to the southwest of the Bearman well, and Cisco may see a good size pool in its backyard.

In Coleman County, Meredith and Benton's No. 1 Weir, 2 miles east of the Overall Pool, looked as if it was due to open up a new area or extend the Overall Pool that far east. This test topped an oil sand from 2,073-76 feet and showed 100 feet of oil in the hole with 500,000 feet of gas. The well was temporarily shut down at 2,106 feet, but will be deepened.

Another active area of this county is around the Lloyd Oil Corp.'s No. 1 Bartholomew in the William Farris Survey. Much trading is going on around this well, which is in the pool opened by Joine's No. 1 Stewardson about two months ago. The pool is about 9 miles south of Santa Anna, and is producing 42 gravity oil. The Lloyd well flowed 139 bbls. the past 24 hours.

In Brown County, G. A. Buder purchased E. L. Smith's lease on an 80-acre tract on the Truehard farm with four wells producing 32 bbls. daily; the E. L. Smith 40-acre H. J. Marr lease with one well producing 7 bbls. daily, and a strip 600 feet wide off the east side of the Smith-Kessler lease; one well producing 3 bbls. in Section 42, H.T.&B. Survey. Consideration was given as $12,500 in cash and $14,000 out of the first half of the oil produced. Mr. Buder also obtained a one-half undivided interest in the south 80 acres of the Simms Oil Co.'s Trueheart lease in the M. L. Lamar Survey No. 638, for consideration of one free well.

## WILDCAT OPERATIONS IN TEXAS PANHANDLE

**Week Ending December 9**

**CARSON COUNTY**

| Company, well, farm, name, section and block— | Remarks— |
|---|---|
| Continental Oil Co.'s No. 2 Block, 990 ft. from N, 330 ft. from E, SE, Sec. 111, Blk. 4, I.&G.N.R.R. Sur. | U.R. 10-in. csg. at 715 ft. |
| Danciger O. & R. Co.'s No. 1 Block, 330 ft. from N and E lines, Sec. 112, Blk. 4, I.&G.N. Sur. | S.D. 2,851 ft. |
| Delmar Oil Co.'s No. 5 Noel, 330 ft. S and W, NE cor. W½ SE, Sec. 198, Blk. 3, I.&G.N. Sur. | S.G. 3,000-10 ft; S.D. 3,131 ft. |
| Empire G. & F. Co.'s No. 1 Fields, 1,650 ft. from N and E, Sec. 13, Blk. 7, I.&G.N. Sur. | Spudding. |
| Empire G. & F. Co.'s No. 2 Deahl, 660 ft. N and E, SW, Sec. 3, Blk. 5, B.&B. Sur. | Drlg. 2,427 ft. |
| Empire G. & F. Co.'s No. 1 Thorp, C NW, Sec. 26, Blk. T, A.B.&M. Sur. | Rigging up. |
| Ham Oil Co.'s No. 1 Cooper, 330 ft. from S and W, E½ NE, Sec. 5, Blk. 9, H.&G.N.R.R. Sur. | Set 8-in. csg. 2,598 ft. |
| Herragan Oil Co.'s No. 1-A McConnell, 330 ft. from N and W, W½ SW, Sec. 187, Blk. 3, I.&G.N.R.R. Sur. | Set. 10-in. csg. 1,128 ft. |
| S. D. McElroy's No. 1 Block, 330 ft. from N and E, NE NW, Sec. 112, Blk. 4, I.&G.N.R.R. Sur. | Drlg. 2,225 ft. |
| McMan O. & G. Co.'s No. 1 McConnell, 330 ft. from N and E, E½ SW, Sec. 187, Blk. 3, I.&G.N.R.R. Sur. | Drlg. 2,265 ft. |
| Osborne et als' No. 3 Percival, 330 ft. N and W, SE cor. E½ NE, Sec. 199, Blk. 3, I.&G.N.R.R. Sur. | Location. |
| Pansota Oil Co.'s No. 1 Block, 330 ft. S and W, NE cor. SW, Sec. 111, Blk. 4, I.&G.N.R.R. Sur. | Rig. |
| Phillips Pet. Co.'s No. 1 Garner, 330 ft. N and E, SW cor. SW, Sec. 114, Blk. 4, I.&G.N. Sur. | S.D. 2,940 ft. |
| Prairie O. & G. Co.'s No. 2 Nail, 330 ft. from N and W lines, N½ E½ SE, Sec. 198, Blk. 3, I.&G.N. Sur. | 10,000,000 ft. gas 2,830-2,985 ft; S.D. 3,112 ft. |
| Red River Gas Co.'s No. 3 Lee Bivins-A, C SE SE, Sec. 43, Blk. M-20, G.&M.R.R. Sur. | Drlg. 610 ft. |
| Ryan Cons. Oil Co.'s No. 7 Block, 330 ft. N, 990 ft. W, SE cor. NE, Sec. 111, Blk. 4, I.&G.N.R.R. Sur. | Spudding. |
| Shell Pet. Corp.'s No. 1 Percival, 330 ft. from N and E, SE, Sec. 199, Blk. 3, I.&G.N. Sur. | Rig. |
| Skelly Oil Co.'s No. 19 Schafer, 330 ft. N, 990 ft. E, SW cor. NE, Sec. 198, Blk. 3, I.&G.N. Sur. | 6,000,000 ft. gas 2,895-2,970 ft; S.D. 3,100 ft. |
| Skelly Oil Co.'s No. 20 Schafer, 330 ft. N, 990 ft. W, SE cor. N½, Sec. 198, Blk. 3, I.&G.N. Sur. | S.D. 3,090 ft. |
| Skelly Oil Co.'s No. 21 Schafer, 340 ft. N, 1,540 ft. W, SE cor. SE, Sec. 68, Blk. 4, I.&G.N.R.R. Sur. | Location. |
| The Texas Co.'s No. 3 Noel, 330 ft. N and W, SE cor. NW, Sec. 187, Blk. 3, I.&G.N.R.R. Sur. | Drlg. 460 ft. |
| The Texas Co.'s No. 3 Quinn, 330 ft. N, 990 ft. E, SW cor. E½, Sec. 7, Blk. 9, I.&G.N.R.R. Sur. | Drlg. 585 ft. |

**CASTRO COUNTY**

| | |
|---|---|
| Colorado O. & R. Co.'s No. 1 M. Siemmons, SW cor., Sec. 73, Blk. M-17, B.S.&F. Sur. | Rig blown down. |
| Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur. | S.D. 510 ft. for csg. |

**CHILDRESS COUNTY**

| | |
|---|---|
| C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands | S.D. 4,675 ft. |

**COCHRAN COUNTY**

| | |
|---|---|
| Westbrook et als' No. 1 Slaughter, 400 ft. from S and E, Labour 67, League 118, Knox Co. School lands | Set 8-in. csg. 2,771 ft. |

**DONLEY COUNTY**

| | |
|---|---|
| Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. from N line, 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur. | T.D. 3,006 ft; contract depth. |

(Continued on Page 71)

### NORTH TEXAS PRODUCTION

**Week Ending December 7**

| Panhandle district— | Bbls. |
|---|---|
| Carson County | 9,805 |
| Hutchinson County | 27,790 |
| Gray County | 61,495 |
| Moore County | 760 |
| Potter County | 0 |
| Wheeler County | 765 |
| Total this week | 100,615 |
| Total last week | 101,085 |
| Decrease | 470 |
| Wichita district— | |
| Archer County | 18,450 |
| Baylor County | 61 |
| Clay County | 822 |
| Cooke County | 8,422 |
| Foard County | 219 |
| Jack County | 4,056 |
| Haskell County | 111 |
| Montague County | 6,372 |
| Throckmorton County | 601 |
| Wilbarger County | 20,995 |
| Young County | 7,113 |
| Wichita County | 26,010 |
| Total this week | 102,233 |
| Total last week | 102,550 |
| Decrease | 317 |
| Ranger district— | |
| Brown County | 10,320 |
| Callahan County | 3,110 |
| Coleman County | 6,405 |
| Comanche County | 1,207 |
| Palo Pinto County | 532 |
| Eastland County | 5,115 |
| Shackelford County | 9,311 |
| Stephens County | 6,118 |
| Total this week | 42,018 |
| Total last week | 43,130 |
| Decrease | 1,112 |
| Grand total this week | 244,866 |
| Grand total last week | 246,765 |
| Decrease | 1,899 |

### WICHITA FALLS DISTRICT

**Week Ending December 7**

Barnsdall Oil Corp.'s No. 18 Wilson had an oil show at 1,711 feet, was drilled to a total depth of 1,713 feet and had an initial production of 86 bbls. Burns & Long's No. 1 Turbeville was dry and abandoned at 1,483 feet. Seaberry and others' No. 1 Brown had an oil show at 1,290 feet, was drilled to a total depth of 1,294½ feet and had an initial production of 12 bbls. E. J. Stump & Co.'s No. 1 Ford was dry and abandoned at 1,800 feet. United Producers Co.'s No. 1 Parkey was dry and abandoned at 1,756 feet. W. D. Cline's No. 1 Horcky was dry and abandoned at 1,-

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# SECOND PRODUCER IN VAN POOL PROVES BETTER THAN DISCOVERY

By L. E. Bredberg

FORT WORTH, Tex., Dec. 9.—The Van Pool of Van Zandt was rewarded with its second producer this week when the Pure Oil Co. drilled in its No. 1 Thompson, south offset to the discovery well on the Jarman farm. This second well, running 40 feet higher structurally than the discovery, was a much better well, good for about 9,600 bbls. a day, estimated on the showing made on a 15-minute open flow when the well gauged better than 100 bbls. in that period, looking good for better than 400 bbls. an hour.

On a nine-sixteenths-inch choke the well flowed 1,870 bbls. in the first 24 hours, the second 24 hours' flow showed it making 1,400 bbls., and in the third 24 hours it gauged 2,100 bbls. with 390 pounds pressure. The discovery well, it must be remembered, had only 60 pounds pressure, consequently the 3,000,000 feet of gas flowing in this second well also tends to raise its merits far above the Jarman well. Total depth of the discovery was 2,710 feet whereas the depth on the second well is only 2,670 feet, 40 feet higher, for the surface elevations are practically the same. Top of the pay in the Thompson well is 2,630 feet.

### Unit Operation

Practically the whole oil fraternity has felt that the Van Pool and the new territory opened by the discovery well on the Jarman farm was a definite threat of overproduction, consequently the companies owning nearby acreage became exceedingly active in working out a unit development plan, which has been adopted for the pool to help restrain developments and prevent waste and save the operators, fee owners and royalty holders considerably, and this plan is now being followed by having the Pure Oil Co. drill the offset wells. The two offsets to the discovery drilling at present are on the Shell Petroleum Corp.'s acreage on the Tunnell farm, adjoining the Jarman farm to the east.

No. 1 Tunnell is shut down at 2,680 feet in oil sand and the well is to be tested tomorrow. It is also running slightly higher than the discovery, and general opinion is it will also be a larger well than the discovery of the Pure Oil Co. No. 2 Tunnell is drilling at 2,545 feet, and is also running higher than the discovery.

Pure Oil Co.'s No. 1 Jarman, the discovery, has been changed from a half-inch choke to a three-quarter-inch choke and the well increased from 265 bbls. daily average to 1,075 bbls. This change was made possible by plenty of storage erected for the present, and the pipe line to Chandler, and loading rack at that place, about ready for service. It is understood the Railroad Commission granted a reduction in freight rates from Chandler to Smiths Bluff where the Pure Oil Co. has a refinery, this reduction to affect the oil shipments from the Pure's loading rack at Chandler to the refinery. For the present, the production will be shipped by tank car, but later the 10-inch line from the Van Field will probably be laid through to the refinery, and the crude transported by way of pipe line instead of tank car.

### Three Interesting Tests

The Central Oil Co.'s No. 1 West in the Ben Wheeler district, Van Zandt County, is shut down at 200 feet, while the East Texas Oil Corp.'s No. 1 Kadane in the John McFadden Survey, across the Van Zandt County line in Smiths County, is shut down at 1,160 feet in shale. Deep Rock Oil Co.'s No. 1 Freeman in the Marvin V. Lout Survey, Smith County, is rigging up and will probably be spudded next week. These are three interesting tests in this area for they test semiwildcat and wildcat acreage and will give some indications of just what this new territory might produce, or what can possibly be expected of the area surrounding the Van Pool.

A big feature in this district is the Humble Oil & Refining Co.'s No. 1 Birdwell, 8 miles northwest of Naches, in the northwest part of the S. Bolin Survey, which is drilling 3,600 feet in Austin chalk. This is the test which topped the Pecan Gap at 3,150 feet last week and created considerable excitement. It appears as if it might be a deep seated salt dome, and will call for more drilling in this immediate area. Royalty sold near this test for $150 base due to the high chalk being encountered. The test was drilled on surface geology and geophysical information, preparatory to blocking the acreage around it.

In Cherokee County the Mid-Kansas Oil & Gas Co. is now drilling on its No. 1 Shelton core test on the M. Sketon 116-acre tract in the northeast part of the Thomas Quevedo Survey.

The Shell Petroleum Corp. and Humble Oil & Refining Co. are also drilling on their respective block in Henderson County.

An interesting test is to be drilled in the east corner of the J. A. Everett lease in the A. Carlisle Survey, 5 miles southeast of Canton in Van Zandt County, testing another part of the Van Zandt County. W. H. Kerbow of Henrietta, Tex., is reported as the owner of this test.

### Production

Daily average production of the pools in East Central Texas for the week ending December 7 follows:

| | |
|---|---|
| Boggy Creek | 3,700 |
| Cedar Creek | 70 |
| Currie | 395 |
| Hill County | 48 |
| Mexia | 4,957 |
| Minerva | 600 |
| Nigger Creek | 250 |
| Powell | 6,838 |
| Richland | 290 |
| Thrall | 37 |
| Van | 250 |
| Wortham | 985 |
| Total | 18,420 |
| Week ending Nov. 30 | 17,807 |
| Increase | 613 |

### Boggy Creek

At Boggy Creek Dome on the Anderson and Cherokee County line, Humble Oil & Refining Co.'s No. 2 Gauger, a semiwildcat on the extreme south side, is in a sandy shale showing oil at 3,514 feet and casing has been cemented to test. No. 3-A Jones is drilling shale at 3,624 feet; No. 3 Tom Jones, Jr., has cemented casing to test at 3,541 feet; No. 1-B Todd is drilling chalk and shale at 3,050 feet; No. 5 Earle & Ragsdal has been rigged up and a location has been made for No. 1 Gamble. No. 4 Lizzie Smith, formerly abandoned at 3,682 feet, has been deepened to 3,698 feet and is being rigged up to pump.

Humble Oil & Refining Co.'s No. 1 Birdwell on the Posey Saline to the southeast of Boggy Creek in Anderson County, is drilling at 3,607 feet. C. M. Joiner's No. 2 Bradford, Rusk County, is drilling at 1,541 feet, and Magnolia Petroleum Co.'s No. 1 Duran, same county, Lollar Survey, is drilling lime and shale at 3,948 feet. Killam & Phillips' No. 1 Scramalde, Robertson County, is drilling sandy shale at 1,721 feet.

In Henderson County, Shell Petroleum Corp. has abandoned the first of a series of tests being drilled on its prospect centering in the R. S. Rayburn Survey. This was No. 1 Coleman, abandoned at 2,174 feet. Shell is drilling in No. 2 at 351 feet and in No. 3 at 341 feet.

Delta County Development Co.'s No. 1 Hayes, Anderson Survey, Delta County, is drilling shale and gumbo at 1,015 feet. In Falls County, Gruver and associates have abandoned No. 1 Westbrook. Total depth of the hole is 1,270 feet although the hole was plugged to 927 feet. Haley & Young still are trying to shut off salt water in No. 1 Knight, Freestone County.

Haskell and associates' No. 1 Strange, Currie, Limestone County, is drilling chalk at 3,012 feet. Jensen & Baggett's No. 1 Richardson, Bridgeman Survey, Limestone County, has started drilling. C. F. Lytle's No. 2 Thompson, deep test at Mexia, Limestone County, is standing at 4,345 feet. Why Not Oil Co.'s No. 3 Rhea, Mexia, is drilling shale at 2,220 feet.

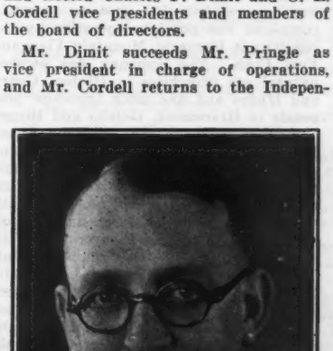
# Dimit and Cordell Join Independent In Executive Positions

Following the resignation last week of Ralph B. Pringle and Villard Martin, vice presidents of the Independent Oil & Gas Co., the executive committee of the

O. L. Cordell

board of directors of the company met and elected Charles P. Dimit and O. L. Cordell vice presidents and members of the board of directors.

Mr. Dimit succeeds Mr. Pringle as vice president in charge of operations, and Mr. Cordell returns to the Indepen-



Charles P. Dimit

dent company after an absence of five months, in charge of sales and distribution.

Both Mr. Dimit and Mr. Cordell are well known among the oil industry of the Mid-Continent fields, both rising to executive positions through successive promotions from the bottom round of the business.

For many years Mr. Dimit has been associated with the Gypsy Oil Co., having started in the material department in 1910, was appointed assistant purchasing agent in 1916, later being made general superintendent of production, and again advanced in 1922 in charge of all operations with the exception of pipe lines.

Mr. Cordell was formerly vice president of the Independent Oil & Gas Co. in charge of sales and distribution, and he now returns to that position. For many years he was associated with the Oklahoma Refining Co. of Oklahoma City, and filled practically all positions from bookkeeper to general manager. He was associated with the Waite Phillips Co. from 1920 until 1926, when that company was sold to Blair Brothers, having charge of sales.

In 1926, with Ralph Pringle, he built the Alamo Refinery, and when it was purchased by the Phillips Petroleum Co., Mr. Cordell went with that company and organized the marketing department and was in charge until he resigned to go with the Independent Oil & Gas Co. For several months he was engaged in the jobbing business.

The Independent Oil & Gas Co. has been undergoing a reorganization since the retirement as president of E. H. Moore on November 15, when R. C. Sharp was elected, and the election of Mr. Dimit and Mr. Cordell completes the full organization.

The executives of the company now are Waite Phillips, chairman of the board; R. C. Sharp, president; C. P. Dimit, vice president in charge of operations; O. L. Cordell, vice president in charge of sales; Gillette Hill, vice president in charge of land department; J. M. Wadsworth, vice president in charge of refineries; John E. Curran, secretary and legal department; R. M. Riggins, treasurer, and M. H. Massey, assistant secretary-treasurer.

Members of the board of directors as now constituted are Waite Phillips, chairman; R. C. Sharp, C. P. Dimit, O. L. Cordell, Gillette Hill, R. M. Riggins, J. M. Wadsworth, E. H. Moore, R. B. Pringle, R. Otis McClintock, Don M. Kelley, E. P. Currier, Henry Lockhart, Jr., A. R. Jones, E. W. Goebel and John E. Curran, secretary of the board.

## M. W. MATTISON RETIRES AS ACCOUNTING HEAD

The Committee on Uniform Methods of Oil Accounting of the American Petroleum Institute at its session in Chicago adopted a resolution regretting the retirement of M. W. Mattison, who has served the institute as director of the Division of Taxation and Accounting for nine and one-half years, and as general chairman of the Committee on Uniform Methods of Oil Accounting since its inception.

Mr. Mattison, it said, has not only rendered conspicuous service to the industry by his leadership in the development of accounting standards, but has been of invaluable assistance to the industry at large in his able interpretation and presentation of the vexatious problems of federal income taxation.

Rodney S. Durkee, comptroller of the Standard Oil Co. of New York, succeeds Mr. Mattison as chairman of the general committee on accounting.

## OIL INVESTMENT IN MEXICO

MEXICO CITY, Dec. 7.—El Conomista quotes the Ministry of Industry, Commerce and Labor as giving the total petroleum exploitation investment in Mexico as 836,366,940 pesos, divided as follows: wells, 274,150,000 pesos; pipes, 228,662,050; steel tanks, 58,693,531; concrete tanks and dams, 1,493,189; refineries, 104,761,350; and miscellaneous, 169,106,820.

From 1911 to 1926 revenues collected by the Mexican government on production totaled 332,398,225 pesos, and from 1921 to 1926 the revenues on exportation of oil totaled 95,681,101 pesos. The total of the two classes of revenue was 428,079,326 pesos.

# Pipe Line Construction News

## GAS COMPANIES LAYING IN COLEMAN COUNTY

FORT WORTH, Tex., Dec. 9.—The Oklahoma Natural Gas Corp., operating in West Texas, and obtaining its gas supply from Coleman County, has contracted for the gas from the field brought in on the San Augustine University Survey No. 519, near the town of Goldsboro in the northwestern part of Coleman County, and is now laying a 6-inch screw line from its main 8-inch line running to San Angelo. The company expects to complete the 12 miles this month, thereby guaranteeing the towns of Ballinger and San Angelo an ample supply of gas as this new field, producing from around 4,000 feet is no doubt the greatest gas field yet discovered in the county. The discovery well came in for an initial production of 7,000,000 feet over two years ago and has held up to more than 5,000,000 feet at the present. The Texas American Syndicate made the discovery and opened up this big gas field, and now has its second well in. This well came in for an initial production of more than 15,000,000 feet and the owners have made two more locations, offsetting this well.

The Texas American Syndicate has over 12,000 acres in fee under lease in this area, and new development will take place in a gradual manner, for the surrounding towns being supplied by the Oklahoma Natural Gas Corp., are slowly increasing in size, and demands are being made on the company for a larger supply, consequently this new field will be tapped according to the demands made on it.

The Oklahoma Natural Gas Corp. is also laying a 5-inch line from the Eastland Oil Co.'s No. 1 Crowder in the Eastland Pool, northeast of Coleman in Coleman County, to the Weaver Ranch to connect with gas wells in the Weaver Pool. This pool is now producing around 10,000,000 feet of gas per day, and will increase in daily average as new wells are drilled.

Due to the wells in the Eastland Pool slumping off rapidly in oil and gas production, the company has been a great expense in laying a line and later pulling it up because of the lack of gas to run. As a result of the wells slumping off in the supply of gas in the Eastland Pool, the line is being extended over to the Weaver Pool.

The Lone Star Gas Co. is laying 5 miles of 6-inch line from a point on its main 10-inch line, 3 miles southeast of Coleman, to the Knox farm in Coleman County, where the Amerada Petroleum Corp. has one producing well. The Lone Star Co. has gathering lines in Coleman and Brown, Callahan and Shackelford and supplies the towns in these areas. It is also running the gas east and south to supply other small towns, as well as Fort Worth and Dallas, Tex.

## OKLAHOMA COMPANIES EXTENDING GAS SYSTEM

Several natural gas companies, which hold franchises in Oklahoma towns are engaged in a race with winter to install natural gas service at the earliest possible moment. Several towns in the panhandle section of Oklahoma are scheduled to be added to the gas lines of the Cimarron Utilities Co. in December. The company has constructed about 43 miles of 4½-inch transmission line connected to wells near Guymon and Texhoma. This line will supply Hooker, Baker, Turpin, Floris, Forgan and Beaver. The State Fuel Supply Co. is constructing 8 miles of 6-inch line from the Cement Field to connect with its supply line which extends 10 miles south from Anadarko. This line, when completed, will bring an additional supply of gas to the new gas distribution systems recently completed and put into operation by the company in Carnegie, Mountain View and Fort Cobb. The company has secured natural gas franchises in Hinton, Geary and Hydro and has made franchise proposals to Gracemont, Gotebo and Binger and other towns in that section. About 1,200 domestic consumers in seven towns of Oklahoma County, and several industrial plants outside the eastern city limits of Oklahoma City, will be served with natural gas from the Oklahoma City oil and gas field, by the Pioneer Gas Utilities Co., J. A. S. Wright, president. This company has constructed local distribution plants and signed up customers in McCloud, Harrah, Choctaw, Jones City, Nicoma Park, Spencer and Dale. Service will start as soon as the supply line connecting these towns with the Oklahoma City Field is completed.

## FIELD WORK REPORTED STARTED ON NATURAL GAS LINE TO SEABOARD

NEW YORK, Dec. 7.—Field work is being conducted as a preliminary to the construction of two large natural gas pipe line extensions of the Columbia Gas & Electric Co. in Pennsylvania and Virginia, embodied in a $40,000,000 plan to move natural gas from the West Virginia fields to the Eastern Seaboard.

The move will follow completion of contracts between the Columbia Gas & Electric Co. and other large utility systems, including the United Gas Improvement Co. and the American Water Works & Electric Co., it was reported, while the Columbia company itself is seeking franchises in many Virginia towns not now supplied with gas.

Upon the closing of the proposed link with United Gas Improvement, the reports indicate that Columbia would lay pipes capable of transmitting large quantities of gas from its West Virginia fields to York, Pa., Philadelphia, Washington and other eastern cities, to be added to the manufactured gas supplies already available.

Plans for Virginia include the laying of pipes from Kentucky to Richmond and Norfolk, with branches serving points not along the main route traversed by the system. With large size pipe costing about $40,000 a mile to install, and smaller sizes as much as $25,000 a mile, the estimate of $40,000,000 represents only the initial cost of creating the framework of the vast system contemplated, the reports indicated.

Extensions to the system will call for the expenditure of hundreds of millions over a period of years, according to utility experts, who view the plans to interconnect natural gas reserves with large centers using manufactured gas as one of the most economical means of assuring a large reserve of gas capacity for industrial and business growth.

The Columbia Gas & Electric Co.'s extensive pipe line system was recently enlarged by the purchase of another line from the Southern Pipe Line Co. by Manufacturers Light & Heat Co., Columbia Gas & Electric subsidiary.

The purchase was for $506,391, at the same price for a mile of the various sizes of pipe as the previous sale to the same company.

The sale is subject to the approval of the Public Service Commission of Pennsylvania and will not be closed until about May 1, 1930.

Early this year the Manufacturers Light & Heat Co. bought portions of the lines of the Southern Pipe Line Co., but on April 24 F. M. Towl, president of the pipe line company, announced that the two remaining systems from the West Virginia-Pennsylvania line to Millway, Pa., afforded a greater capacity than the company was able to use.

## GAS LINE TO MONTERREY ENCOUNTERED HANDICAPS

HOUSTON, Tex., Dec. 9.—The United Gas Co. of Houston through its subsidiaries has completed its new line extending from the gas fields of Southwest Texas to Monterrey, Mexico, a distance of 143 miles, and the line now is being operated, furnishing natural gas for the first time to the Mexican industrial metropolis.

The pipe is 12¾-inch and was laid by Smith Brothers, Inc., of Dallas, Tex., under contract with the United Gas Co. The line at present has a capacity of better than 20,000,000 feet daily and gets its supply chiefly from the Jennings Field of Zapata County. The line crosses the Rio Grande River at Roma.

Laying of the line started last July, but the work encountered many handicaps due to the rough country it traverses. Much of the ditching literally had to be blasted through.

## PIPE LINE PROJECTS IN MONTANA DISTRICT

CASPER, Wyo., Dec. 7.—R. M. Heskitt, vice president of the Dakota Montana Power Co. is authority for the statement that the company has authorized a program of pipe line work the coming year to cost $4,500,000 and that the company's distribution will be extended to include many cities and towns in Montana and North Dakota.

The Pondera Utilities Co. has stated that its system will be enlarged in 1930 to take in the cities of Williams, Agwam, Bynum and Farmington. The line this company is laying to Vallier is nearly ready for the gas to be turned in and the company has been serving Conrad about two months and Choteau about one month.

The gas was turned into the line from the wells on Bowdoin Dome to Glasgow, in Valley County, the past week. This line was laid by the Perkins Jones Gas Co. and marks the beginning of the marketing of gas from the shallow wells on the Bowdoin Dome in northern Montana. The company states that there is no danger of a shortage of gas and that other cities are to be connected with the system next year.

### CONTRACT FOR WYOMING LINE

Producers & Refiners Corp. has entered a contract by which New York Oil Co. will market gas from the former's Muskrat Dome gasser in Fremont County, Wyoming, and connections are being made with the trunk line from Big Sand Draw to Casper. This well, which opened a new gas field in western Wyoming, came in a year ago at 4,312 feet with an open flow of 75,000,000 feet of gas a day. It is the only well drilled to the producing horizon on the structure. Producers & Refiners controls practically all the acreage on the dome.

## OIL COUNTRY ORDERS HOLDING UP BETTER

By B. E. V. Luty

PITTSBURGH, Pa., Dec. 9.—Production of pipe and tubes has been slipping seasonally, but the decrease has been less, in point of percentage, than in some other lines that might be named—lines that ordinarily have the automotive industry as a large customer. Thus the hot-rolled and cold-rolled strip mills are running at only 20 to 30 per cent of capacity. Something like half their total business last year and the first half of this year was with the automobile industry, and that has stopped almost entirely, while demand from other consumers has fallen off somewhat. Sheet mills are at lower than 60 per cent operation, while for several months earlier in the year they were running practically full. The pipe and tube mills have had no such decrease, but at no time were they running full.

A fair estimate seems to be that the pipe and tube mills are running at between 50 and 60 per cent, with tube mills doing a little better than pipe mills. The pipe mills continue to have a fair amount of business in standard pipe, although there has been some seasonal decrease, and there are orders in for line pipe.

Freight car buying is not particularly active at the moment, but there is a fair amount of inquiry out and much more is expected. As very close prices would naturally be made in present circumstances the railroads may possibly anticipate some requirements. Fully 26,000 cars were ordered during October and November, while production was probably about two-thirds as much, so that the order books are better than on October 1, when there was only a moderate volume on books. Rail buying has been in full volume and has come somewhat earlier than usual whereby the rail mills are running above their average for this date. Structural fabricating shops are very well booked, although incidentally their bookings have been light since November 1. The result is that rail and structural shape mills are running very well and plate mills are doing moderately well. Also there is a heavy operation of agricultural implement works.

The rate of steel production last week may be estimated at approximately two-thirds of capacity, while there was capacity operation in May. Approximate rates have been 90 per cent October 1, 80 per cent November 1 and 70 per cent December 1.

Steel prices are holding, but naturally they would when there are no tempting orders and when mills realize lower prices would be harder to hold than the present familiar prices.

### ALBERTA PIPE LINE

CHATHAM, Ontario, Dec. 7.—The newly completed Alberta Pipe Line Co.'s oil line is now delivering crude from the Turner Valley Field to the Regal Oil & Refining Co. plant at Calgary. The line is handling all deliveries for the company from this field, eliminating a great deal of hauling. Line and storage tanks cost approximately $200,000. Regal Oil & Refining Co. is extending its distribution in Alberta, three new service stations having recently been opened at Edmonton, and bulk stations having been established as the more important points in the province. The Regal company features lines especially intended for use under Alberta winter conditions, its output including Regal winter gasoline, Icy-Flo motor oil, Regalube and Penn-Empire lubricating oils.

# WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 68)

Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... S.D. 3,540 ft.

Southland Oil Co.'s No. 1 Lewis, C SE 40 ac., Sec. 3, Blk. 29, H.&G.N.R.R. Sur. ..... S.D. 2,570 ft.

**GRAY COUNTY**

Adams Oil Co.'s No. 4 Morse, 330 ft. S and W, NE cor. Sec. 3, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,495 ft; S.O.

Alexander and Shell Pet. Corp.'s No. 1 Harrah-McKinney, 330 ft. S and W, NE cor. E½ SE, Sec. 163, Blk. 3, I.&G.N.R.R. Sur. ..... S.G. 3,065 ft; T.D. 3,070 ft; fishing tools.

British-American Oil Co.'s No. 2 Purviance, 330 ft. N and E, SW cor. E 160 ac., Sec. 61, Blk. B-2, H.& G.N.R.R. Sur. ..... Location.

Champlin Ref. and Danciger's No. 3 Cook-Faulkner, 330 ft. S and E, NW cor. W 120 ac. of E 200 ac., Sec. 30, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,180 ft.

Clayton-Key Oil Co.'s No. 1 Key, 330 ft. from S and W of E 42 ac. of N 84 ac. of S 168 ac., Sec. 1, B.&B. Sur. ..... Drlg. 1,710 ft.

Constantine et als' No. 1 Crews, 330 ft. S and W, NE cor. SW, Sec. 20, Blk. 30, H.&G.N.R.R. Sur. ..... S.G. 2,190 ft; drlg. 2,290 ft.

Danciger et als' No. 11 Jackson, 330 ft. S, 1,320 ft. W, NE cor. NW, Sec. 88, Blk. B-2, H.&G.N. Sur. ..... T.D. 2,906 ft.

Danciger O. & R. Co.'s No. 1 McLarty, 1,320 ft. from S, 330 ft. from W, W½ NW, Sec. 10, Blk. 1, A.C. H.&B. Sur. ..... 12,000,000 ft. gas 2,275-2,350 ft; 50,000,000 ft. gas 2,275-2,490 ft; 18,000,000 ft. gas 2,500-2,620 ft; T.D. 3,375 ft; to P.B. for gas.

Danciger O. & R. Co.'s No. 5 Morse, 330 ft. N and E, SW SW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Drlg. 2,245 ft.

Danciger O. & R. Co.'s No. 1 Shaw, 330 ft. from S, 286 ft. from E of E 39½ ac., NW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... T.D. 2,588 ft.

Danciger O. & R. Co.'s No. 2 Smith, 330 ft. from S and E, SE, Blk. 3, I.&G.N.R.R. Sur. ..... Location.

Danciger O. & R. Co.'s No. 1 Williams, 330 ft. from N, 330 ft. from E, S½ NW ..... Estimated 15,000,000 ft. gas 2,610-70 ft; S.D. 2,720 ft.

Dunlop's No. 4 Morse, 330 ft. N and E SW cor. SW, Sec. 17, Blk. A-9, H.&G.N.R.R. Sur. ..... T.D. 2,431 ft.

Follet Pet. Corp.'s No. 1 Hood, 330 ft. from S and W of W 80 ac., SW, Sec. 32, Blk. 3, H.&G.N.R.R. Sur. .. Location.

Sines & Reiger's (formerly Eslick et als') No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... S.D. 3,206 ft.

Gardner Bros. and Collins' No. 2 Saunders, 955 ft. from S, 330 ft. from E of W 68 ac. E½, J. G. Eustice Sur. .. Location.

Gulf Prod. Co.'s No. 1 Barrett, 967 ft. N and E, SW cor. NE, Sec. 131, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 1,965 ft.

Gulf Prod. Co.'s No. 3 Worley-A, 330 ft. N, 1,650 ft. W, SE SW, Sec. 36, Blk. 3, I.&G.N.R.R. Sur. ..... Temp. abd. at 3,163 ft.

Gulf Prod. Co.'s No. 3 Saunders, 330 ft. S, 990 ft. E, NW cor. its 130-ac. lease out of SW cor., Sec. 40, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 2,450 ft.

Guernsey Oil Co.'s No. 1 Vaniman, 330 ft. N and W, E½ NE, Sec. 176, Blk. 3, I.&G.N.R.R. Sur. ..... S.D. 1,105 ft.

Haymer O. & G. Co.'s No. 1 Morse, 330 ft. each way out of SE cor. E½ SE, Sec. 45, Blk. A-9, H.&G. N. Sur. ..... Drlg. 1,065 ft.

Herragan Oil Co.'s No. 1 Bradford, 330 ft. from N, 990 ft. from E. Sec. 123, Blk. B-2 ..... First S.G. 2,475-80 ft; 15,000,000 ft. gas 2,515-40 ft.; S.D. 3,140 ft.; S.O. 2,932-50 ft.

Humble O. & R. Co.'s No. 4 Jackson, 976 ft. N, 330 ft. E, SW cor. E 95.25 ac., Sec. 90, Blk. B-2, H.&G.N. Sur. .. S.G. 2,271 ft; flowed 180 bbls; T. P. 2,882-90 ft; T.D. 3,053 ft.; 6,-000,000 ft. gas 2,853-3,053 ft; C.O.

Humble O. & R. Co.'s No. 1 Palmer, 330 ft. from N and E lines, of W 100 ac., Sec. 31, Blk. B-2, H.&G. N. Sur. ..... S.D. 3,120 ft; to pump; P.B. 3,-110 ft.

Lyon et als' No. 1-A Morse, 330 ft. from S and W, NW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Rig.

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. from N and W cor. SE, Sec. 200, Blk. B-2, H.T.N. Sur. .... Location.

Magnolia Pet. Co.'s No. 7 Bowers, 990 ft. S and E, NW cor. NW, Sec. 63, Blk. B-2, H.&G.N.R.R. Sur. ..... T.P. 2,855 ft; I.P. 150 bbls first 24 hrs; drlg. 2,999 ft; I.P. 700 bbls; T.P. 2,990 ft.

Magnolia Pet. Co.'s No. 4 Magnolia, 990 ft. S and 330 ft. W, NE cor. NE, Sec. 11, Blk. 3, I.&G.N.R.R. Sur. .. T.D. 2,932 ft; 1,500 ft. oil in hole; T.P. 2,840 ft.

Magnolia Pet. Co.'s No. 1 Wright, 330 ft. S and W lines, S½ SW, Sec. 13, Blk. 3, I.&G.N. Sur. ..... 15,000,000 ft. gas 2,707-10 ft; drlg. 2,740 ft.

McAuley et als' No. 2 Morse, 330 ft. S and E, NW cor. S½ NE, Sec. 2, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,470 ft; S.O. 2,410 ft; 100 ft. oil in hole 2,442 ft.

Oil Operators' No. 1 Bowers, 330 ft. from N, 330 ft. E, Sec. 93, Blk. B-2, H.&G.N. Sur. ..... Show oil and gas 2,400-17 ft; S.D. 3,090 ft; S.O. 3,036-55 ft; first gas 2,483 ft; increased at 2,500 ft., 2,544 ft. and 2,950 ft.

Operators Oil Co.'s No. 1 Lovett, 330 ft. from N and W lines, W½ NE, Sec. 57, Blk. B-2, H.&G.N. Sur. .. Gas 2,390 ft; S.O. 2,837-47 ft; T. D. 3,061 ft; P.B. 2,880 ft.; shot 280 qts. from 2,830-80 ft.; swabbed 17 bbls. in 3 hrs.; to pump.

Operators Oil Co.'s No. 5 Cook-Faulkner, 990 ft. N, 330 ft. W, SE W 90 ac., Sec. 30, Blk. B-2, H.&G.N. Sur. .. S.D. 2,748 ft.

Operators Oil Co.'s No. 6 Cook-Faulkner, 330 ft. S and E, NW cor., Sec. 30, Blk. B-2, H.&G.N.R.R. Sur. .... S.G. 2,424 ft. and 2,477 ft; S.D. 2,750 ft.

Operators Oil Co.'s No. 7 Cook-Faulkner, 330 ft. S, 320 ft. E, NW cor., Sec. 30, Blk. B-2, H.&G.N. Sur. ..... S.G. 2,380 ft; S.D. 2,691 ft.

Phillips Pet. Co.'s No. 6 Jackson, 330 ft. from N, 990 ft. from E, line, S½ NE, Sec. 88, Blk. B-2, H.&G. N.R.R. Sur. ..... T.D. 3,030 ft; fishing pipe.

Phillips Pet. Co.'s No. 6 Palmer, 330 ft. S and W, NE cor., Sec. 81, Blk. 2, H.&G.N.R.R. Sur. ..... S.D. 2,835 ft; I.P. 520 bbls; T.P. 2,805 ft.

Plains Drlg. Co.'s No. 1-A Chapman, 330 ft. from S and W, NE, Sec. 10, Blk. 26, H.&G.N. Sur. ..... S.G. 2,240 ft; 15,000,000 ft. gas 2,240-90 ft; T.D. 2,765 ft; 300 ft. oil in hole; shot 230 qts. from 2,580-2,740 ft; C.O.

Queen Oil Co.'s No. 1 Lovett, 330 ft. N and W, W½ NE, Sec. 35, Blk. B-2, H.&G.N.R.R. Sur. ..... Spudded and S.D.

Quillian et als' No. 1 Barrett, 330 ft. from N, 330 ft. from E, Sec. 131, Blk. 3, H.&G.N. Sur. ..... 20,000,000 ft. gas 2,660-2,705 ft; S.O. 3,100 ft; S.D. 3,150 ft.

Ray et als' No. 1 Noble, 240 ft. from S and 330 ft. from W line, W 80 ac., SW, Sec. 10, Blk. A-6, H. &G.N. Sur. ..... Drlg. 2,734 ft; S.G. 2,708 ft.

Rieger & Steckoll's No. 1 Bohr, 330 ft. from S and E, Sec. 37, Blk. B-3, H.&G.N. Sur. ..... Drlg. 1,800 ft.

Robertson & Devore's No. 1 Saunders, 330 ft. from S and W, E½ NW, Sec. 40, Blk. 3, H.&G.N.R.R. Sur. .. Driving 20-in. csg. 300 ft.

Shamrock O. & G. Co.'s No. 2 Saunders, 330 ft. N and E, SW E½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... S.D. 2,438 ft.

Shamrock O. & G. Co.'s No. 1 Taylor, 330 ft. each way out of NE cor. NW, Sec. 1, Blk 2, H.&G.N. Sur. .... T.D. 1,858 ft.

St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W, NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Spudded and S.D.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor., Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Stogner Meaders' No. 1 Taylor, 330 ft. from S and E, SW, Sec. 7, Blk. H, A. H. Wallace Sur. ..... 1,000,000 ft. gas 2,490-2,535 ft; 2,000,000 ft. gas: T.P. 2,490 ft; T.D. 3,105 ft; S.O. 2,920 ft. and 2,992 ft.

The Texas Co.'s No. 8 Cook-Faulkner, 1,158 ft. N, 1,835 ft. W, SE cor., Sec. 29, Blk. B-2, H.&G.N.R.R. Sur. .. Drlg. 885 ft.

The Texas Co.'s No. 14 Saunders, 955 ft. N, 330 ft. W, SE cor. W½, J. G. Eustis Sur. ..... Drlg. 2,697 ft; S.O. 2,697 ft.

The Texas Co.'s No. 15 Saunders, 330 ft. N and W, SE cor. W½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur. .... S.D. 2,600 ft.

Travis & Rieger's No. 1 Mackie, 330 ft. from N and E, Sec. 114, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,900 ft; 16,000,000 ft. gas; T.P. 2,685 ft.

Travis et als' No. 1-B Webb, 330 ft. N and W, Sec. 61, Blk. 25, H.&G.N.R.R. Sur. ..... Rigging up.

Trippiehorn Oil Co.'s No. 1 Morse, 330 ft. from S and W, SW SE, Sec. 17, Blk. A-9, H.&G.N.R.R. Sur. ..... Rig.

Vulcan O. & G. Co.'s No. 1 Carpenter, 330 ft. from N and W of W 80 ac., NW, Sec. 35, Blk. 25, H.&G.N. R.R. Sur. ..... Location.

White Eagle O. & R. Co.'s No. 3 Faulkner, 1,158 ft. N, 330 ft. E, SW cor. E 80 ac., Sec. 29, Blk. B-2, H. &G.N.R.R. Sur. ..... Drlg. 2,115 ft.

Wright Wilson, trustee's No. 1 Chapman, 175 ft. from S and E lines, N½ NW, Sec. 69, Blk. 25, H.&G.N. Sur. .. S.O. 2,685 ft; S.D. 2,693 ft.

Wilcox-Pampa Oil Co.'s No. 10 Combs-Worley, 330 ft. S and W, NE cor. SW SW, Sec. 35, Blk. 3, I.&G. N.R.R. Sur. ..... T.D. 2,707 ft.

**HARTLEY COUNTY**

Dana O. & G. Co.'s No. 1 Fritz, C NE, Sec. 81, Blk. 44, H.&T.C.R.R. Sur. ..... Location.

**HOCKLEY COUNTY**

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County School lands; elevation 3,363 ft; contract depth 5,000 ft. ..... Drlg. 3,345 ft.

**HUTCHINSON COUNTY**

Alamosa Oil Co.'s No. 4 Sanford, 310 ft. S, 320 ft. W, NE cor. N 160 ac., S 240 ac., Sec. 85, Blk. 46, H.& T.C. Sur. ..... S.O. and wtr. 3,010-11 ft; S.D. 3,-095 ft.

Danciger O. & R. Co.'s No. 3 Moore, 330 ft. S and E, NW W½ SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. .... Drlg. 2,653 ft.

Huey et als' No. 3 Smith et al, 330 ft. from N, 660 ft. from W, S 40 ac. of E 100 ac., SE, Sec. 12, Blk. Y. . Fishing 2,702 ft.

Midwest Expltn. Co.'s No. 3 Moore, 330 ft. N, 330 ft. W, SE NE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... Drlg. 600 ft.

Oates & Jones, No. 1 Jasper, 450 ft. S, 330 ft. W, NE 131-ac. tract, Sec. 23, Blk. M-23, T.C.R.R. Sur. .... U.R. 10-in. at 1,025 ft.

O. B. Penney's No. 2 Johnson Bros., 330 ft. from S line, 330 ft. from W line, W½ NE, Sec. 35, Blk. Y, A.&B. Sur. ..... 31,000,000 ft. gas 1,990 ft; S.D. 3,-060 ft; S.O. 3,040-45 ft; I.P. 60 bbls.

Reliance O. & G. Co.'s No. 2 Sanford, 330 ft. S and E, NW W½ of N 80 ac. of S 320 ac., Sec. 83, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,590 ft.

Skelly Oil Co.'s No. 2 Lee Bivins, 306 ft. from E, 1,242 ft. from S line, S 160 ac. of N 320 ac., Sec. 84, Blk. 46, H.&T.C.R.R. Sur. ..... S.D. 3,015 ft; T.P. 3,010 ft; I.P. 164 bbls.

Smith & McDaniel's No. 1 Pitcher, 330 ft. from S and E, Sec. 19, Blk. M-21, T.C.R.R. Sur. ..... Drlg. 1,650 ft.

The Texas Co.'s No. 3 Moore, 330 ft. S, 1,338 ft. E, NW cor. SW, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. .... Drlg. 2,950 ft.

The Texas Co.'s No. 4 J. L. Moore, 330 ft. S and W, NE cor. SW, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... Drlg. 772 ft.

Travelers Oil Co.'s No. 2 Cockrell, 350 ft. from E and S lines, Sec. 8, Blk. B-3, D.&S.E. Sur. ..... 1,000,000 ft. gas 2,610-2,770 ft; T. D. 3,039 ft; T.P. 3,010-39 ft; shot 120 qts. 3,010-39 ft; I.P. 140 bbls; C.O.

**LAMB COUNTY**

Graham O. & G. Co. et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... S.D. 3,950 ft.

**LIPSCOMB COUNTY**

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... Underreaming 6⅝-in. csg.; T.D. 3,750 ft.

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... Drlg. 4,830 ft.

**LUBBOCK COUNTY**

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft; fishing 4,-167 ft.

**MOORE COUNTY**

Amarillo Oil Co.'s No. 1 Perkins-A, 330 ft. each way out of NW cor. NE, Sec. 76, Blk. 2 ..... Fishing 3,575 ft.

Canadian River Gas Co.'s No. 1-C Sneed, 660 ft. from N and E, SW, Sec. 46, Blk. 6-T, T.&N.O.R.R. Sur. .. Driving csg. at 200 ft.

Dana O. & G. Co.'s No. 1 Anthony, C NW, Sec. 260, Blk. 44, H.&T.C.R.R. Sur. ..... Set 8-in. csg. 3,312 ft.

Fritch O. & G. Co.'s No. 1 Lee Bivins, C N 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... 2,000,000 ft. gas 1,550-65 ft; fishing 2,405 ft.

Red River Gas Co.'s No. 1 J. M. Shelton, 330 ft. each way from SE cor., Sec. 52, Blk. 3, G.&M. Sur. ..... Drlg. 2,050 ft.

**MOTLEY COUNTY**

Expltn. Co.'s No. 5 Matador, C, Sec. 45, Blk. J-B, C, B.&C.N.G.R.R. Sur. ..... S.D. 3,915 ft.

Expltn. Co.'s No. 6 Matador, 330 ft. from N line, 330 ft. from E line, Sec. 132, Blk. M ..... S.D. 3,880 ft.

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

**POTTER COUNTY**

Canadian River Gas Co.'s No. 1 Allison "A," 386 ft. from E line, 5,439 ft. from S line, Sec. 1, W. T. Palmer Sur. . Drlg. 2,435 ft; 11,000,000 ft. gas 2,295-2,375 ft.

**RANDALL COUNTY**

W. A. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14 .. S.D. 1,250 ft.

**ROBERTS COUNTY**

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. A-5 ..... T.D. 5,992 ft; shot 10 qts. 5,270-93 ft; S.O. 5,288 ft; C.O.

**WHEELER COUNTY**

Lela O. & G. Co.'s No. 1 Williams & Laycock, 330 ft. from S, 209 ft. from W, W½ NW, Sec. 20, Blk. A-8, H.&G.N. Sur. ..... Fishing 1,755 ft.

Lone Star Gas Co.'s No. 1 Simms, C SW NE, Sec. 103, Blk. 23, H.&G.N.R.R. Sur. ..... S.D. 500 ft.

Magnolia Pet. Co.'s No. 2 Laycock, 880 ft. N, 700 ft. E, SW cor. S½ SW, Sec. 10, Blk. 27, H.&G.N.R.R. Sur. Drlg. 1,950 ft.

Martin & Debous' No. 2 Close, C NE NE, Sec. 83, Blk. 23, H.&G.N.R.R. Sur. ..... Drlg. 1,010 ft.

Murchison & Fain's No. 1 Cooper, C SW NW, Sec. 80, Blk. 23, H.&G.N.R.R. Sur. ..... Location.

Upham Gas Co.'s No. 5 Close-Gooch, 30 ft. N, 660 ft. E, SW cor. SW NW, Sec. 81, Blk. 23, H.&G.N.R. R. Sur. ..... Location.

Upham's No. 1 Cuddleback, C SE SE, Sec. 2, Blk. 24, H.&G.N.R.R. Sur. ..... Drlg. 480 ft.

Vaughn et als' No. 3 Ackley, 330 ft. from N, 330 ft. from W, Sec. 4, Blk. 27, H.&G.N. Sur. ..... T.D. 1,840 ft; 5,000,000 ft. gas 1,-660-1,770 ft; junked hole; skidding rig 60 ft. south.

Wischkamper et als' No. 1 Curry, C NE SE, Sec. 53, Blk. 23, H.&G.N. Sur. ..... 10,000,000 ft. gas 1,750-90 ft.; S.D. 1,850 ft; T.P. 1,790-1,805 ft.

## OKLAHOMA FIELDS

(Continued from Page 50)

in the pool for small pumpers, the largest being good for 350 bbls.

**Townsite Drilling**

The townsite of Earlsboro is having a town lot drilling campaign. A total of 24 rigs are up in the townsite. Sinclair Oil & Gas Co. is building a rig for its No. 1 Shimer, a short distance south of the townsite in the NW cor., Section 17-9-5, for a Wilcox sand test. Healdton Oil & Gas Co.'s No. 1 Reed, in the Earlsboro Townsite, made 417 bbls. from the Wilcox sand at 4,345-87 feet after two shots of 15 quarts each. The well may be shut down to comply with the proration agreements in the district until December 15.

East Little River Pool shows a gain of about 2,300 bbls. over the previous week. Most of the increased production is due to new producers in the pool. Mid-Continent Petroleum Corp.'s No. 2 Yarhola, NW cor. SW NE, Section 8-7-7, had the Cromwell sand at 3,278-3,300 feet, where it made 140 bbls. an hour and 1,930 bbls. of oil the first 24 hours, and 2,000 bbls. of water, together with 30,000,000 feet of gas.

Production in the Little River Pool has declined approximately 2,000 bbls. from last week's gauges for the week ending December 4. This pool is now being prorated 25 per cent of its potential, which is an increase from last month when production was curtailed 20 per cent of its potential.

An important wildcat being drilled by the Independent Oil & Gas Co. and Denver Producing & Refining Co., No. 1 Johnson, NW cor., Section 20-8-6, Seminole County, is being watched with interest. This test missed the Hunton lime and was drilling at 4,240 feet on December 4 with no showing.

Wofford Drilling Co.'s No. 1 McGee, NE cor. NW SE, Section 4-7-4, Pottawatomie County, wildcat, made 960 bbls. from the Hunton lime at 3,870-72 feet. Five new locations have been made surrounding the well on all sides by different companies. It extends production northwest in the St. Louis Pool. Some geologists believe Wilcox sand oil may be found with deeper drilling.

St. Louis Pool continues to show increases in its production, the daily average for the week ending December 4 being 54,032 bbls. from 441 wells.

Sasakwa Pool was increased last week about 1,700 bbls. for the week ending December 4. Proration restrictions were lifted two days which resulted in increased production. Pure Oil Co.'s No. 5 Bates, SW cor. NE, Section 13-6-7, had Wilcox sand at 4,092-4,120 feet, where it flowed 1,102 bbls. in 12 hours. Carter Oil Co.'s No. 1 Harjo, NW cor. NE SE, Section 13-6-7, found a hole full of water in the Wilcox sand at 4,249-50 feet. It has been plugged back to 4,195 feet, and the water shut off. The casing will be ripped and a production test made of the Cromwell sand at 2,813 feet. Indian Territory Illuminating Oil Co.'s No. 2 Fleet, NE cor. NW SE, Section 13-6-7, had Cromwell sand at 4,235-38 feet, and it flowed 210 bbls. in 12 hours and swabbed 610 bbls. in 24 hours.

**Renewed Interest in McClain**

Since the wildcat test in McClain County found oil in the Viola lime oil companies have resumed leasing activities in a southwest trend from Pottawatomie County through McClain County.

Southern Oklahoma is being leased in scattered areas. Blocking is under way in Townships 3s-5w, 3s-6w, 4s-6w and 4s-5w, in Stephens and Jefferson Counties. A new wildcat play is developing in the area east of Ada, in Pontotoc County. A wildcat test may be drilled in Townships 4-7 and 4-8, Pontotoc County. A new wildcat location has been made for Dovell & Goode's No. 1, NE cor., Section 1-7-22w, Greer County, for a 2,000-foot test. It will be drilled on a block of 3,500 acres. Another wildcat has been spudded by B. F. Price's No. 1 in the NW cor., Section 16-4-24w, Harman County.

Wirt Franklin Petroleum Corp.'s No. 1 Martin, NE cor. NW SW, Section 9-2s-6w, Stephens County, found a gas sand at 3,125-38 feet, and is estimated to be good for 40,000,000 feet. Casing is to be cemented at 3,120 feet before the well will be completed. It is an offset to the discovery gas well, the same company's No. 1 Spain.

The daily average production of the two completed wells in the Palacine Field in Stephens County, drilled by Wirt Franklin Petroleum Corp. for the week ending December 4, was 570 bbls. from a sand between 3,100-3,300 feet. In the same area two gas wells have been completed and six tests are drilling in the immediate vicinity of the producers. Same company's No. 1 Bonner, NW cor. SE, Section 9-2s-6w, Stephens County, has defined the field to the east by finding only a small showing of oil in the same horizon. It was later drilled to a total depth of 3,939 feet, and abandoned. Same company's No. 1 Vann, SW cor. NW NW, Section 4-5-9s, Caddo County, has been plugged back to 3,198 feet, and shot from 3,167-98 feet, with 30 quarts, but with little results. The old total depth was 5,855 feet.

Homaokla Oil Co.'s No. 1 Newsome, SE cor. NE NE, Section 16-5-3, McClain County, made 290 bbls. in 24 hours on the gauge of December 6. This wildcat is causing considerable excitement extending the production about 8 miles southwest. The production was found in the Viola lime at 3,587-3,605 feet. It was drilled deeper with little increase in production and may be put to pumping at this depth. It opens up considerable territory which may be exploited some time next year and it also enhances the values of acreage in the county.

**Northwestern Development**

Acreage is still attractive to the oil companies in Grant and Noble Counties. A new wildcat test may be drilled in Township 21-2w, Noble County. The most important wildcat in this area is the Gypsy Oil Co.'s No. 1 Bilderbeck, in Section 27-28-7w, Grant County. It was drilling deeper at 4,875 feet, in broken lime. The test had a showing of oil at 4,058-65 feet. Magnolia Petroleum Co.'s No. 1 Young, Section 22-21-2w, Noble County, found a new producing horizon for that area and is estimated to be a 300 to 500-bbl. well when completed. It found oil in the Misener sand at 5,100-04 feet. The well is shut down until stock tanks can be erected and flow lines laid.

**Coring in the Panhandle**

The Oklahoma Panhandle is being core drilled and the major oil companies are blocking leases in Beaver County. Block are being assembled in Townships 2n-28e, 2n-24e, and 2n-25e, (Cimarron Meridian) and core drills are at work in Township 2n-27e. The wildcat tests in the northwestern part of Oklahoma are the Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Section 14-26-24w, Harper County, was fishing at a total depth of 6,161 feet. Several joints of rotary drill pipe were lost in the hole. Same company's No. 1 Stewart, C NE SW, Section 33-27-16w, Woods County, was drilling at 5,800 feet, on December 6. Bu-Vi-Bar Petroleum Corp. and others' No. 1 fee, SE cor. SW, Section 10-25-15w, was drilling at 6,020 feet, in shale carrying water. Prairie Oil & Gas Co. and others' No. 1 Wilber, NE cor. SE, Section 23-23-17w, Woodward County, was drilling at 5,905 feet, in black shale. Harris & Haun's No. 1 Wyatt, C SE, Section 9-23-20w, Woodward County, was fishing a bit at 4,969 feet. Peerless Oil & Gas Co. and Sinclair Oil & Gas Co.'s No. 1 Crowell, was drilling at 1,220 feet, with rotary tools.

**Greater Seminole Production**

The production of the Greater Seminole area averaged daily 326,975 bbls. for the week ending December 4, which is an increase of 11,689 bbls. The daily average gauges for the various pools for the same week were as follows:

| Pool— | Wells | Bbls. |
|---|---|---|
| Little River | 348 | 43,462 |
| East Little River | 49 | 24,835 |
| Carr City | 58 | 10,863 |
| Maud | 137 | 8,185 |
| Mission | 110 | 15,133 |
| Bowlegs | 295 | 23,642 |
| Earlsboro | 295 | 35,607 |
| East Earlsboro | 69 | 35,954 |
| Seminole | 273 | 25,387 |
| East Seminole | 28 | 4,954 |
| Searight | 85 | 9,094 |
| St. Louis | 441 | 54,032 |
| Asher | 25 | 3,953 |
| Sasakwa | 30 | 10,838 |
| Allen | 237 | 21,036 |
| Total Greater Seminole | 2,493 | 326,975 |

The total of the first 11 pools named above, which constitute the Seminole Field, was 236,116 bbls. from 1,747 wells, for the same period ending December 4.

**Pipe Line Runs**

The daily average pipe line runs increased almost 15,000 bbls. daily from the previous week's runs. The total runs were 239,915 bbls. oil. Runs by companies for the week ending December 4 were as follows:

| Company— | Bbls. |
|---|---|
| Barnsdall | 2,950 |
| Champlin | 3,380 |
| Continental | 355 |
| Consolidated | 730 |
| Cosden | 9,270 |
| Empire | 3,915 |
| Gulf | 39,425 |
| Magnolia | 9,165 |
| Oklahoma | 43,975 |
| Prairie | 36,110 |
| Producers & Refiners | 1,375 |
| Pure | 2,940 |
| Shaffer | 5,270 |
| Shell | 6,360 |
| Sinclair | 27,500 |
| Texas | 14,910 |
| Tidal | 20,800 |
| White Oak | 1,985 |
| Total | 230,415 |
| Tank cars | 9,500 |
| Grand total | 239,915 |

**Extension in Logan County**

J. S. Cosden, Inc., and others' No. 4 Gardner, in Section 31-19-4w, Logan County, has been deepened in the Wilcox sand and made 1,628 bbls. for the gauge ending December 9 at 7 a.m. The oil is coming from Wilcox sand at 6,002-31 feet. The well increased its production when it was drilled 2 feet deeper the previous day's gauge being 731 bbls. This well extends the production a half mile south in the Marshall Pool.

**Atoka County**

J. W. Earnest's No. 1 Burton, NW cor. SE SE, Section 1-1-13, has drilled to 800 feet and shut down. No. 1 Warmack, CSL SW SW, Section 6-1-14, has been abandoned at 600 feet.

**Beckham County**

Sayre Oil & Refining Co.'s No. 1 Porch, SW cor. NW SE, Section 24-9-23w, has been completed for 5,000,000 feet of gas in sand 2,112-2,696 feet.

**Carter County**

Carter Oil Co.'s No. 4 Jennings, SE cor., Section 28-1s-3w, is a rig under construction. No. 5 Ratliff, SW cor. SE SW, Section 20-1s-3w, has been completed for 20 bbls. in sands 2,914-3,473 feet. Magnolia Petroleum Co.'s No. 2 Tivas, SW cor. NW, Section 20-1s-3w, made 11 bbls. from sands 3,230-3,471 feet. Ven Mex Oil Co.'s No. 1 Metheny, SE cor. NW SE, Section 23-1s-3w, has been completed for 90 bbls. in sands 2,183-2,640 feet. No. 1 McGahey, NW cor., Section 29-1s-3w, has been completed for 108 bbls. in sands 2,717-3,229 feet. Carter Oil Co.'s No. 9 Dixon, SE cor. NE NW, Section 30-1s-3w, has been shut in for 20,000,000 feet of gas in sands 2,597-2,780 feet. Magnolia Petroleum Co.'s No. 2 Powers, NW cor. NE NW, Section 4-2s-3w, made 30 bbls. from sands 3,800-4,208 feet. Cotton Belt Petroleum Co.'s No. 11 P. Rexroat, SE cor. NE NW SW, Section 10-4s-2w, has been completed for 20 bbls. in sands 1,306-1,436 feet.

**Cotton County**

Wirt Franklin Petroleum Corp.'s No. Chambers, C SW SE, Section 35-1s-10w, is making 40 bbls. from sand 2,148-76 feet. No. 7 Chambers, SW cor. SE, Section 35-1s-10w, made 50 bbls. in sand 2,147-67 feet. Shasta Oil Co.'s No. 1 Smith, NE cor. SW, Section 31-1s-9w, has been completed for 40 bbls. in sand 2,228-32 feet. Wirt Franklin Petroleum Corp.'s No. 1 Bandy, NW cor., Section 4-4s-10w, has been abandoned at 3,419 feet.

**Creek County**

Operators Oil Co.'s No. 4 Grayson, SE cor. NW SE, Section 17-19-9, is rigging up. No. 5 Grayson, NW cor. SE, Section 17-19-9, is a machine. The Texas Company's No. 6 Baker, SE cor., Section 14-17-10, is a location. H. L. Deadman and others moved a machine in for No. 3 Shepard, NE cor. SE SW, Section 17-17-10. Reiter Foster Oil Corp. made location for No. 3 Little Head, CWL SW SE, Section 17-17-10. Pure Oil Co.'s No. 27 Berryhill, CWL NE NE, Section 18-17-12, is an old well cleaning out to deepen from 1,464 feet. F. B. Murta and others moved a machine to the location for No. 1-A Smith, SE cor. NE, Section 33-16-10. Sheridan Oil Co.'s No. 1 Skinner, C SW SE, Section 1-16-11, is rigging up. Shaffer Oil & Refining Co. and Billingslea's No. 1 Lewis, SE cor. SW SW, Section 10-15-8, is cleaning out to deepen from 3,192 feet. Keaton and others' No. 1-A Drew, SW cor. NW NW SW, Section 32-18-11, has been abandoned at 2,262 feet. O. M. Irelan and others' No. 2 Hay, NW cor. NE NE SW, Section 3-17-10, has been completed for 3,000,000 feet of gas in sand 1,019-32 feet. The Texas Company's No. 5 Baker, CEL SE SE, Section 14-17-10, made 45 bbls. in sand 1,892,-1,930 feet. H. L. Dedman and others' No. 2 Shepard, CEL SE SW, Section 17-17-10, has been completed for 25 bbls. in sand 2,072-2,122 feet. William Sherry and others' No. 1 Self, C SW NW, Section 22-17-10, is dry and abandoned at 2,972 feet. McCready and others' No. 3 Hardridge, NW cor. SW SE, Section 30-17-11, has been abandoned at 1,823 feet. Paraffine Oil Co.'s No. 8 Ross, SE cor. NW NE, Section 34-16-11, made 30 bbls. in sand 1,967-97 feet. The Prairie Oil & Gas Co.'s No. 36 Berryhill, SE cor. SW SE NE, Section 16-17-12, drilled deeper to the Glenn sand at 1,576 feet and is pumping 2 bbls.

**Hughes County**

Magnolia Petroleum Co.'s No. 1 Brown, SE cor. NE, Section 12-9-8, is rigging up. Dixie Oil Co. made location for No. 4 Cornelius, NE cor. SW SW, Section 17-8-10. Troutt Drilling Co. moved a machine in for No. 2-A Bird, SW cor. NE NW, Section 5-8-11. McGee Brothers' No. 1 Bird, SW cor. SE NW, Section 30-8-12, is dry and abandoned at 3,774 feet. Magnolia Petroleum Co.'s No. 7 Reed, NE cor. SE NW SW, Section 17-5-8, has been completed for 250 bbls. in Cromwell sand 2,560-2,609 feet. Producers & Refiners Corp. made location for No. Coker, C SW SW, Section 12-7-8. Location was also made for No. 1 Proctor, C SE NE, Section 11-7-8.

**Jefferson County**

Bridewell Oil Co.'s No. 2 Seay, SE cor. SW NW, Section 29-6s-5w, is drilling at 1,714 feet. O. V. Beck's No. 4 Seay "B," SW cor. NE SW SE, Section 34-6s-5w, has a sand from 1,202-18 feet and is bailing. No. 3 Seay "B," NW cor. SE SW SE, Section 34-6s-5w, made 100 bbls. in sand 1,225-37 feet.

**Kay County**

Wentz Oil Corp.'s No. 2 Fester, NW cor. SE, Section 17-28-1, is rigging up to deepen. No. 23 Welch, NE cor. SW, Section 17-28-1, is an old well preparing to deepen. De Camp & Lancer's No. 1 Covely, SE cor. NE, Section 24-28-1w, has been abandoned at 3,860 feet. Parrish and others' No. 5 Whitesides, SE cor. NE SW, Section 25-28-1w, has been abandoned at 743 feet.

**Le Flore County**

G. F. Collins' No. 1 Jackson, NE cor. NW NW, Section 33-7-26, is drilling at 1,550 feet.

**Lincoln County**

Flynn & Morgan's No. 1 Johnson, SW cor. NE, Section 1-16-5, has been abandoned at 4,012 feet.

**Logan County**

Currier and others made location for No. 1 Katcher, SW cor. NE SW, Section 34-17-4w.

**Marshall County**

Max Westheimer's No. 1 Davidson, NE cor. SW SE NW, Section 30-5s-6, is drilling at 200 feet.

**Muskogee County**

Mack Drilling Co.'s No. 2 Richards, NW cor. SE NW NE, Section 33-16-15, is spudding. H. L. Jolly moved a machine in for No. 3 Carlina, SW cor. NW SW, Section 9-15-18. Arthur Oil Co.'s No. 1-A Dean, CNL SE NE NW, Sec-

tion 34-15-18, is spudding. E. Mills and others' No. 2 Foreman, SW cor. NW SE SE, Section 14-13-18, is drilling at 250 feet. H. L. Jolly's No. 4 Cherry, NE cor. NW, Section 2-14-18, is dry and abandoned at 1,244 feet. H. D. Johnston and others' No. 3 Jordan, NW cor. NE NE, Section 23-13-18, has been completed for 750,000 feet of gas in sand 612-16 feet.

**Okfuskee County**

Superior Oil Corp. made location for No. 1 Bird, NW cor. SE, Section 23-12-11. Jarvis & Holm's No. 2 Buckley, NW cor. NE NW, Section 21-10-11, is rigging up to deepen from 2,519 feet. Champlin Oil & Refining Co.'s No. 3 Parrish, NW cor. SW SW, Section 14-11-11, has been completed for 135 bbls. in sand 2,507-09 feet. No. 7 Washington, SE cor. NE SE, Section 15-11-11, made 50 bbls. from sand 2,494-2,504 feet. Summitt Drilling Co.'s No. 1-A Jefferson, SE cor. SW, Section 23-11-11, had sand 2,040-60 feet and was completed for 30 bbls. Regal Oil Co.'s No. 10 Simmers, NW cor. SE NE NE, Section 11-10-11, has been abandoned at 2,070 feet.

**Okmulgee County**

I. M. Levine and others' No. 2 Warner, NW cor. SE NW, Section 24-14-12, is rigging up. J. L. Selby's No. 17 Flint, C NW NE, Section 26-14-14, is an old well drilling deeper at 1,200 feet. Jones and others moved a machine in for No. 1 Roberts, NE cor. NW SW, Section 26-13-12. Jake Rutz Oil Co.'s No. 9 Hill, SE cor. NW SW SW, Section 25-13-14, is spudding. Kirkland & Son's No. 5 Price, NW cor. SW NE NW, Section 20-15-13, has been completed for 10 bbls. in sand 1,463-1,528 feet. F. D. Misener's No. 4 Carter, C NW SE, Section 10-15-14, has been completed for 50 bbls. in sand 1,614-17 feet.

**Oklahoma County**

Mid-Kansas Oil Co. has the cellar dug for No. 1 C. E. Trosper "A," SE cor. NE SE, Section 24-12-2w. Indian Territory Illuminating Oil Co. made location for No. 1 May Knox, NE cor. SE, Section 14-11-3w, Oklahoma City Field. Location has been made for No. 2 May Knox, SE cor. NE SE, Section 14-11-3w. Location was made for No. 1 Borden, NE cor. SE SE, Section 23-11-3w. Sinclair Oil & Gas Co. made location for No. 2 School Land No. 54, SE cor. NE NE, Section 36-11-3w. No. 3 School Land No. 54 is a location, NW cor. NE NE, Section 36-11-3w. Location for No. 1 School Land No. 67 has been made NE cor. SE, Section 36-11-3w. Indian Territory Illuminating Oil Co. made location for No. 5 N. Emmerson, NE cor. SE SW, Section 30-11-2w. Sinclair Oil & Gas Co. and Amerada Petroleum Corp. made location for No. 5 Kinter, SE cor. NE SE, Section 30-11-2w. T. B. Slick and others staked location for No. 2 Hoopes, SW cor. NE, Section 31-11-2w. Skelly Oil Co. made location for No. 3 Hoopes, NE cor. NW NE, Section 31-11-2w. Indian Territory Illuminating Oil Co. made location for No. 1 Mary Sudik, NE cor. SW, Section 31-11-2w. Indian Territory Illuminating Co. made location for No. 3 Jones, SE cor. NE NW, Section 31-11-2w. Location was made for No. 4 Jones, NE cor. SE NW, Section 31-11-2w. No. 5 Jones is a location, SE cor. NW, Section 31-11-2w.

**Osage County**

Union Oil & Mining Co. is moving a machine in for No. 3 CSL NW, Section 32-23-10. Peters Petroleum Corp.'s No. 2 NE cor. NW NE NW, Section 27-27-11, has been completed for 20 bbls. in Bartlesville sand 1,695-1,715 feet. Lewis Production Co.'s No. 1 NW cor., Section 23-25-7, has been abandoned at 2,700 feet. Peters Petroleum Corp. and Producers & Refiners Corp.'s No. 2, SE cor. SW, Section 23-25-9, is dry and abandoned at 2,250 feet. Oklahoma Power & Water Co.'s No. 128, SE cor. NW SW SW, Section 4-20-10, made 450,000 feet of gas from sand 393-402 feet. No. 127, SW cor. NE NW NW, Section 9-20-10, has been completed for 633,000 feet of gas in sand 410-22 feet. Indian Territory Illuminating Oil Co.'s No. 372, NE cor. NW SE, Section 22-27-11, made 30 bbls. from Bartlesville sand 1,672-90 feet.

**Pawnee County**

Stanley & Brewer moved the rig in for No. 1-A White, SW cor. SE, Section 6-20-8. Roy Sears and others' No. 7 Wiggs, CNL NE NW, Section 35-20-9, is a machine. Johnson Oil & Refining Co.'s No. 2 Byles, NE cor. SE NE, Section 27-20-9, has been completed for 80 bbls. in Red Fork sand 2,148-83 feet.

**Pontotoc County**

Rush & Vaughn made location for No. 2, NW cor. SE NW, Section 32-5-5, Bebee Pool. Dixie Oil Co. made location for No. 3 Herman, NW cor. SW SW, Section 6-4-8. Independent Oil & Gas Co. and Shaffer Oil & Refining Co.'s No. 1 Moses, NE cor. SE SW, Section 10-5-4, is dry and abandoned at 3,341 feet. Transcontinental Oil Co.'s No. 4 Perry, SW cor. NW NW, Section 19-5-5, has been completed for 117 bbls. in Simpson sand 2,533-44 feet. No. 5 Perry, NW cor., Section 19-5-5, swabbed 120 bbls. from Viola lime 2,367-2,428 feet. Denver Producing & Refining Co.'s No. 1 Stafford, NW cor. SW NW, Section 31-5-5, has been completed for 94 bbls. in Viola lime 2,483-2,630 feet. Tidal Oil Co.'s No. 14 Dawson, SW cor. NW, Section 28-5-8, made 39 bbls. from sand 829-42 feet. Baker & Lynch's No. 1 Harrell, NE cor. SE, Section 29-5-8, pumped 10 bbls. from sand 847-52 feet. Homaokla Oil Co.'s No. 4 Shields, NE cor. SW SE, Section 33-5-8, has been completed for 7,000,000 feet of gas in sand 1,091-1,110 feet. The Prairie Oil & Gas Co.'s No. 1 Forney, NW cor. SW, Section 25-5-8, Allen Field, has been completed for 100 bbls. in sand 812-26 feet.

**Pottawatomie County**

Indian Territory Illuminating Oil Co.'s No. 2 Brandenburg, SW cor., Section 35-8-4, is a rig on the ground. W. B. Pine moved a rig in for No. 3 Smith, NE cor. SW NE, Section 8-8-5, Allen Pool. Sinclair Oil & Gas Co.'s No. 1 Wilamett, SW cor. NE SE, Section 12-7-4, St. Louis area is a rig on the ground. Magnolia Petroleum Co. moved the rig in for No. 1 Jordan, NE cor. SW SE, Section 12-7-4. No. 1 Cherry, SE cor. SW, Section 13-7-4, is an old well cleaning out to deepen from 3,652 feet. No. 2 Richardson, SW cor., Section 15-7-4, is cleaning out to deepen from 3,652 feet. No. 2 Richardson, SW cor., Section 15-7-4, is cleaning out to deepen from 4,009 feet. Indian Territory Illuminating Oil Co.'s No. 3 Shobe, SE cor. SW SE, Section 35-8-4, North St. Louis Field, made 64 bbls. at 4,298 feet after plugging back from 4,310 feet in Wilcox sand. Amerada Petroleum Corp. and Indian Territory Illuminating Oil Co.'s No. 1 Vinyard, NW cor. NE NE, Section 15-7-3, drilled to 5,093 feet in Wilcox sand, plugged back to 4,456 feet and made 265 bbls. Houston Oil Co.'s No. 5 Wyatt, SE cor. NE SW, Section 17-7-4, Pearson Field, has been completed for 600 bbls. in Simpson sand 4,072-92 feet. No. 6 Wyatt, SW cor. NE SW, Section 17-7-4, swabbed 211 bbls. from Simpson sand 4,125-44 feet. Magnolia Petroleum Co. and Pierce Oil Corp.'s No. 3 Hubanks, NW cor. NE NW, Section 17-7-4, is dry and abandoned at 4,133 feet. The Prairie Oil & Gas Co.'s No. 3 Regan, SW cor. SE NE, Section 17-7-4, made 1,315 bbls. from Simpson sand 4,087-4,120 feet. Independent Oil & Gas Co. and Darby Petroleum Corp.'s No. 1 Curly, NW cor. SE NW, Section 22-7-4, is dry and abandoned at 4,474 feet in Simpson sand. Sinclair Oil & Gas Co.'s No. 2 Coley, NE cor. SE SE, Section 24-7-4, has been deepened from 3,936 feet to 4,247 feet in Simpson sand and completed for 165 bbls.

**Seminole County**

Amerada Petroleum Corp. and Dixie Oil Co.'s No. 3 Fullerton, SW cor. NE SE, Section 19-9-6, East Earlsboro Pool, is a cellar. Tidal Oil Co. and Interocean Oil Co.'s No. 3 Lasley, NW cor. NE SW, Section 19-9-6, is a cellar. Gypsy Oil Co. made location for No. 3 Taylor, SW cor. NE SW, Section 19-9-6. Magnolia Petroleum Co. staked location for No. 1 Miller, NW cor. NE SW, Section 16-8-7. Champlin Oil & Refining Co. and Empire Oil & Refining Co.'s No. 2 Skinner, NW cor. SW, Section 9-6-6, is a cellar. Gypsy Oil Co. made location for No. 1 Harjoche, NE cor. SE, Section 8-6-6. Magnolia Petroleum Co. made location for No. 1 Reed, NE cor. SE NW, Section 31-6-8. Blackwell Oil & Gas Co. moved the rig in for No. 1 Lusty, SW cor. SE, Section 12-5-7, West Allen Field. Magnolia Petroleum Co. staked location for No. 3 Parney, NW cor. NE SE, Section 14-5-7. Producers & Refiners Corp. is moving the rig in for No. 4 Jefferson, SE cor. NW SE, Section 19-9-6. The Prairie Oil & Gas Co. and T. B. Slick's No. 2 Tiger, SW cor. NW NE, Section 8-7-7, East Little River Pool, is a rig being built.

Carter Oil Co. and others' No. 1 C. Hully, NE cor. SW, Section 15-10-6, is dry and abandoned at 4,575 feet. Carter Oil Co.'s No. 1 Noble, SE cor. NW, Section 16-9-6, is a dry hole at 3,685 feet. Magnolia Petroleum Co.'s No. 10 A. Anderson, SE cor. NE SW, Section 18-9-6, East Earlsboro Pool, made 2,204 bbls. from Wilcox sand 4,317-33 feet. Sinclair Oil & Gas Co.'s No. 1 Nichols, NE cor. NW NE, Section 19-9-6, has been completed for 2,980 bbls. in Wilcox sand 4,-196-4,224 feet. No. 6 Nichols, SE cor. NE NW, Section 19-9-6, made 5,685 bbls. from Wilcox sand 4,185-4,210 feet. Producers & Refiners Corp.'s No. 1 Jefferson, NE cor. NW SE, Section 19-9-6, was completed for 4,580 bbls. in 21½ hours, producing from Wilcox sand 4,137-64 feet. Magnolia Petroleum Co.'s No. 1 McGirt, SE cor. NE NW, Section 16-8-8, is a dry hole at 4,354 feet. Carter Oil Co.'s No. 2 Eleck, NW cor. SW SE, Section 23-7-6, Little River Pool, has been completed for 190 bbls. in Booch sand 3,109-66 feet. The Prairie Oil & Gas Co.'s No. 2 Smith, SE cor. NE SW, Section 5-7-7, East Little River Pool, made 1,240 bbls. from Wilcox sand 4,193-4,218 feet. No. 3 Smith, NE cor. SE SW, Section 5-7-7, was completed for 1,505 bbls. in Wilcox sand 4,195-4,223 feet. E. L. Harris' No. 1 Harjoche, SE cor. NE SE, Section 8-6-6, has been completed for 160 bbls. in sand 2,860-65 feet after plugging back from 4,052 feet in Wilcox sand.

**Stephens County**

Ellis Drilling Co.'s No. 10 Nigh, SW cor. NW, Section 34-1s-8w, is cementing surface pipe. Magnolia Petroleum Co.'s No. 8 Burke, SW cor. NE NW NE, Section 34-1s-8w, is running 6-inch casing at 1,680 feet. Pace and others' No. 11 McMasters, NW cor. SE NE, Section 13-2s-8w, is rigging up. Fossett and others' No. 1 Dial, SE cor. NW NE, Section 18-1s-8w, is dry and abandoned at 2,555 feet. Ven Mex Oil Co. and Mid-Continent Oil Co.'s No. 2 Thompson, SE cor. SW, Section 35-1s-8w, has been abandoned at 2,227 feet. Shell Petroleum Corp.'s No. 1 Pierce, SW cor. SE SE, Section 2-1s-4w, made 75 bbls. from sands 3,260-3,687 feet. Murphy Oil Co.'s No. 17 Fobb "B," SE cor. NW SW, Section 12-2s-8w, has been completed for 65 bbls. in sand 2,029-55 feet.

**Wagoner County**

P. Boyle and others' No. 3 Sugar, NW cor. SW, Section 17-17-16, is rigging. Cherokee Public Service Co.'s No. 2 Smith, SW cor. NE, Section 36-16-17, is drilling at 560 feet.

## TEXAS PANHANDLE

(Continued from Page 68)

549 feet. Consolidated Oil Co. of Texas' No. 2 Wright was dry and abandoned at 1,745 feet. Cullum and others' No. 3 Falls County fee had an initial production of 51 bbls. at 1,111-31 feet. Golding & Cochran's No. 1 Kieke had an initial production of 28 bbls. at 1,419-33 feet. Peacock & Tedford's No. 2 Williams was dry and abandoned at 640 feet. Perkins & Cullum's No. 1 Hamilton was dry and abandoned at 1,201 feet. Perkins-Cullum & Parsons' No. 1 Williams was dry and abandoned at 625 feet. Prairie Oil & Gas Co.'s No. 2 Falls County fee had an initial production of 7 bbls. at 1,099-1,109 feet.

**Baylor County**

Consolidated Oil Co. and others' No. 2 Portwood had an initial production of 20 bbls. at 1,393-1,423½ feet. Grisham and Barnsdall's No. 1 Portwood had an initial production of 95 bbls. at 1,398-1,402 feet.

**Clay County**

Merrick and others' No. 2 Byers & Co. had an initial production of 80 bbls. at 1,013-19 feet. Saxet Oil Co.'s No. 1 Landrum was dry and abandoned at 1,065 feet.

**Cooke County**

Coline Oil Co.'s No. 6 Huggins was dry and abandoned at 1,145½ feet. Kewanee Oil & Gas Co.'s No. 1 Pickett was dry and abandoned at 1,600 feet.

**Jack County**

Gilmore and others' No. 1 Price was dry and abandoned at 550 feet. Republic Production Co.'s No. 1 Ezell made 300 bbls. at 3,153-77 feet. Seaboard Oil & Gas Co.'s No. 1 Enloe was dry and abandoned at 3,215 feet.

**Throckmorton County**

Shappell Oil Co.'s No. 5 University land had an initial production of 25 bbls. at 1,245-59 feet.

**Young County**

Perkins & Cullum's No. 1 Deitrich had an initial production of 175 bbls. at 1,-136-54 feet. Sun Oil Co.'s No. 15 Deitrich had an oil show at 1,138-58½ feet and an initial production of 150 bbls. The Texas Company's No. 1 Hoffman was dry and abandoned at 800 feet. Hines Oil Co. and others' No. 1 Criswell had an initial production of 10 bbls. at 2,995-3,050 feet.

**Wichita County**

Magnolia Petroleum Co.'s No. 16 Donehoo was dry and abandoned at 1,505 feet. E. J. Stump's No. 1 Chilson was dry and abandoned at 1,923 feet. Arkansas Fuel Oil Co.'s No. 23 Kemp-Kempner had an initial production of 175 bbls. at 1,762-69 feet. Its No. 24 Kemp-Kempner had an initial production of 300 bbls. at 1,754-61 feet. Everts & Jamison's No. 3 Gibson made 27 bbls. at 1,910-34 feet. Panhandle Refining Co.'s No. 13 Burnett and others was dry and abandoned at 1,981 feet. Sheldon and Venmex's No. 1 Robinson had an initial production of 96 bbls. at 1,913-30½ feet. The Texas Company's No. 370 Waggoner had an initial production of 23 bbls. at 1,952-67 feet.

**Wilbarger County**

Dixie Oil Co.'s No. 1 Waggoner was dry and abandoned at 2,545 feet. Empire Gas & Fuel Co.'s No. 18 Waggoner was dry and abandoned at 2,145 feet. Its No. 9 Waggoner was dry and abandoned at 2,285 feet. Its No. 18 Waggoner had an initial production of 101 bbls. at 1,-880-1,910 feet. Fain-McGaha Oil Corp.'s No. 20 Waggoner was shot with 30 quarts at 2,272-2,300 feet and had an initial production of 210 bbls. Its No. 3 Waggoner was dry and abandoned at 2,-435 feet. Golding & Cochran and others' No. 3 Waggoner had an initial production of 90 bbls. at 1,920-25 feet. Hi-Land Oil Co.'s No. 2 George had an oil show at 2,199-2,208 feet and had an initial production of 130 bbls. Lion Oil & Refining Co.'s No. 1 Waggoner was dry and abandoned at 2,585 feet. Proctor's No. 1 Waggoner was dry and abandoned at 2,435 feet. Staley-Wynne & Co.'s No. 6 Waggoner made 80 bbls. at 2,385-97 feet. Their No. 1 Waggoner made 40 bbls. at 2,324-28 feet. The Texas Company's No. 365 Waggoner was dry and abandoned at 2,503 feet. Venmex Oil Co.'s No. 4 Waggoner had an initial production of 104 bbls. at 1,941-46 feet. Waggoner Refining Co.'s No. 14 Waggoner had an initial production of 160 bbls. at 2,415-18 feet. Zenith Oil Co.'s No. 1 Dill had an initial production of 125 bbls. at 2,205-13 feet.

### RANGER DISTRICT

**Week Ending December 7**

**Brown County**

E. L. Smith Oil Co.'s No. 15 George encountered oil sand at 1,222-45 feet and had an initial production of 150 bbls. The Texas Company's No. 5 Johnson was drilled to a total depth of 1,325 feet after finding the oil pay at 1,303-21 feet and an initial production of 115 bbls. M. T. Anderson's No. 1 Riordan had an initial production of 4 bbls. oil and 10 bbls. water at 1,202-08 feet.

Brown and others' No. 1 McIntosh was dry and abandoned at 1,240 feet. Texcal Oil Co.'s No. 4 Martin had an initial production of 30 bbls. at 983-86 feet. Windsor and others' No. 1 Pierce was dry and abandoned at 1,405 feet.

**Callahan County**

Campbell and others' No. 1 Jackson topped the sand at 1,124 feet, was drilled to a total depth of 1,124 feet and had an initial production of 225 bbls. Richard and others' No. 1 Gorserch was dry and abandoned at 1,330 feet.

**Coleman County**

Eastland Oil Co.'s No. 1 Griffin was dry and abandoned at 2,235 feet. White Eagle Oil & Refining Co. and others' No. 1 Jameson was dry and abandoned at 2,028 feet. McCamey and others' No. 2 Sealy Smith had an oil show at 2,125-35 feet, was drilled to a total depth of 2,148 feet and had an initial production of 8 bbls. of oil and 10 bbls. of water.

**Eastland County**

Hickok company's No. 1 Johnston was dry and abandoned at 3,962 feet. C. M. Root's No. 1 Hazel was shot with 15 quarts from 3,455-3,515 feet and had an initial production of 40 bbls. Southern Oil & Purchasing Co.'s No. 1 Owens was shot with 150 quarts at 3,100-40 feet, shot with 80 quarts at 3,315-40 feet, was dry to a total depth of 4,025 feet, had an oil show of 10 bbls. and was dry and abandoned. The Texas Company and Warner-Quinlan Co.'s well was dry and abandoned at 3,860 feet.

**Erath County**

Frazier, Watson and others' No. 1 Blanton was drilled to a total depth of 3,815 feet, plugged back to 3,605 feet, was shot with 100 quarts from 3,549-3,600 feet and had an initial production of 368,000 feet of gas. Mingus Gas Co.'s No. 1 Alexander had an initial production of 1,902,000 feet of gas at 3,263-3,454 feet.

**Stephens County**

Hickok Producing & Drilling Co.'s No. 3 Homil was dry and abandoned at 4,031 feet.

**Shackelford County**

Cranfill & Reynolds' No. 1 Matthews was dry and abandoned at 1,196 feet. J. W. Ducker's No. 1 Matthews had an oil show at 603-12 feet and at 6-12-21 feet was drilled to a total depth of 627 feet and had an initial production of 30 bbls. Dull-Earls and The Texas Company's No. 4-B Matthews had an initial production of 200 bbls. at 1,145-62 feet. Jake L. Hamon, Jr.'s No. 1 Morris & Buie was dry and abandoned at 1,652 feet. Hart & Gist's No. 1 Dears was dry and abandoned at 708 feet. Tannehill and others' No. 7 Matthews had an initial production of 40 bbls. at 1,152-69 feet. Vacuum Oil Co.'s No. 6-C Matthews was shot with 10 quarts in sand at 1,141-62 feet, was drilled to a total depth of 1,163 feet and had an initial production of 66 bbls.

## TEXAS PANHANDLE COMPLETIONS

**Week ending December 7**

**Carson County**

Stubblefield's No. 1 Garner, located 330 feet south and east of SE cor., Section 104, Block 4, was drilled to a total depth of 3,095 feet, plugged back to 2,850 feet, was shot first with 80 quarts at 3,000-70 feet and the second time with 230 quarts at 2,335-2,695 feet and had an initial production of 7,000,000 feet of gas.

**Cochran County**

Continental Oil Co.'s No. 1-A Slaughter, located 330 feet from west and 430 feet from south line of League 130, Carson County School Land, was drilled to a total depth of 5,001 feet, plugged back to 4,900 feet, was shot with 80 quarts from 4,860-75 feet and swabbed 65 bbls. oil on test and was then shot again with 40 quarts from 4,790-4,800 feet and was then shot the third time with 150 quarts from 4,745-70 feet.

**Gray County**

Hinerman Brothers' No. 1-A Taylor, 330 feet from NE E half NE, Section 8, Block H, A. H. Wallace Survey, was dry and abandoned at 3,325 feet. Shamrock Oil & Gas Co.'s No. 2 McCutcheon-Saunders was drilled to a total depth of 2,798 feet, topped the pay at 2,600 feet, had an initial production the first 24 hours of 105 bbls. oil and 450 bbls. water and is now flowing 10 bbls. oil and 300 bbls. water. The Texas Company's No. 3 McLarty, located Section 10, Block 1, was drilled to a total depth of 2,992 feet, was plugged back to 2,420 feet and topped the pay at 2,725 feet making 5,000,000 feet of gas. Guernsey Oil Co.'s No. 1 Pope, located 330 feet from north and west of E half NE cor., Section 173, Block 3, I.&G.N.R.R. Survey, was drilled to a total depth of 3,296 feet, topped the pay at 3,186-3,280 feet and had an initial production of 50 bbls.

## STANDARD TO LICENSE HYDROGENATION PROCESS

(Continued from Page 42)

to rely upon chance to maintain its equilibrium.

**Definite Solution**

The hydrogenation process provides a definite although not an easy solution of this basic problem of the industry. At its inception the process was regarded primarily as one for converting coal into oil. But the experiments in which the technique of this problem was mastered were not confined to coal alone—the hydrogenation conversion process was shown to be applicable to the conversion of heavy asphaltic products of the class of heavy fuels into gasoline and distillates of the class of light fuels. There was thus provided a scientifically possible solution of the two foremost problems of the industry, first, that of quantity of supply and second, that of maintaining a balance between supply and demand of light and heavy products. A third problem, secondary but of great commercial importance, was also shown to be capable of at least partial solution. That was the problem of altering the chemical structure of the constituents of the oil. Science thus opened to the petroleum industry in the form of the hydrogenation process an indefinitely greater enlargement of its range of operation as a conversion industry.

**Third Basic Process**

Refining and conversion by decomposition are now supplemented by a third basic process, hydrogenation, the potential field of which so far as it has as yet been explored is as follows:

1. The conversion of coal and other carbonaceous solids into oil.
2. The conversion of heavy oils, natural or synthetic, into light oils.
3. The conversion of crude oils, intermediate products, or finished products into similar products of modified chemical characteristics.

Thus the hydrogenation method enlarges the field of possible conversion of petroleum products as distinguished from refining of such products in what are perhaps the only three statistically important respects in which such enlargement is required, as to quantity of available supply, second as to balance between light and heavy fuel products, and third, to an important extent at least as to the reduction of sulphur content and improvement of other chemical characteristics, the difficulty of control of which by refining methods has been a minor but important weakness of the industry.

The company feels that the considerations mentioned above will serve to explain the unusual interest which has been displayed in the subject of hydrogenation by the petroleum industry since the first announcements were made concerning the new development. The industry recognizes now, just as it did in 1880 and again in 1910, that present manufacturing methods must be supplemented by conversion processes of wider scope.

**Commercial Plants**

The three initial commercial oil plants for the operation of the hydrogenation process, now building at Bayway, N. J., Baton Rouge, La., and Baytown, Tex., are proceeding rapidly toward completion and these plants, together with the I. G. Farbenindustrie commercial plant at Merseburg, Germany, which operates both on coal and oil, will provide a fairly wide range of commercial experience. Aside from the basic technical and economic questions which are involved in the development of the hydrogenation method the business aspects of the commercial use of the process have received the most careful consideration.

It has never been the plan to restrict the use of the process to the subsidiary and affiliated units of the Standard Oil Co. of New Jersey. The views of the I. G. Farbenindustrie A. G., and this company are and have been that the process will have the best chance of exerting a maximum constructive influence on the oil industry if it is offered for license in the United States at the earliest practicable time and on a basis which will provide opportunity for co-operation of the industry at large in its further development. The announcement which has just been made covers the first step in such a program. This company and the I. G. Farbenindustrie A. G. have merged their patent interests in a new corporation which will be called Standard-I. G. Co. Standard Oil Co. of New Jersey owns the majority of the stock in this company and will assume responsibility for its management.

The technical work in the United States on the development of the process and the construction of plants will remain for the present in the hands of the Standard Oil Development Co. which will co-operate directly with the technical staff of the I. G. All business aspects of the joint development will be centered in the Standard-I. G. Co.

## BULK OF GASOLINE IS NOW SOLD UNDER CODE

(Continued from Page 41)

cent of the gallonage had signed the code. In North Dakota, 70 per cent of the jobbers with 75 per cent of the gallonage were signers. According to Mr. Hadlick the failure of two large distributors to sign the code was slowing up the work of those who hope to secure a more general acceptance.

H. H. Ragle, executive vice president of the Michigan Independent Oil Men's Association, stressed the necessity of educating the jobber regarding the purpose of the code in order to allay suspicions that it was designed to injure the small distributor. He said that he found considerable confusion regarding the provisions of the lease and agency agreements. Approximately 45 per cent of the distributors in Michigan with 75 per cent of the gallonage have signed the code.

Many grievances were aired at the hearing. It was apparent there is still considerable confusion regarding the interpretation of the code's provisions and the national committee was scheduled to meet Friday and Saturday to consider some of the new problems that have developed. There has been an inclination on the part of a few to "cut the corners" in their application of the code's provisions and this is retarding its general acceptance. It was pointed out that it would be impossible for the national committee or the sub-committees to issue rulings covering all the applications that might be made of the code's rules. An attitude of doing more than the code required rather than endeavoring to get around its provisions with technicalities was said to be necessary if the efforts now being made to secure better merchandising methods were to be successful. Although some complaints regarding the present status of the code were heard from practically all the states reporting, it was felt in most cases that progress was being made and the ends desired would eventually be accomplished.

M. J. Grogan, president of the Louisiana Oil Refining Corp., Shreveport, in reporting for the chairman of the Louisiana committee attacked the code's provisions in regard to commercial discounts. "We feel that nothing constructive has come out of the code of ethics in Louisiana," he declared in concluding what was the most pessimistic viewpoint expressed at the hearing.

## OIL INDUSTRY'S BIG IMPROVEMENT PROGRAM

(Continued from Page 37)

"We consider the strong position that we have been able by voluntary agreement to bring about a balance of production with market requirements in the production of crude oil. That has been the task that we have been working on for a great many years, and we feel very much gratified that we have now been able to bring about that condition.

"You ask how the condition of our business is as compared with a year ago.

"The oil industry today is in better condition than it was a year ago, in better condition than it was three years ago, in better condition than it was six months ago, and better than it was 90 days ago.

"The weak point is, as I said before, the overproduction of gasoline.

**Now Very Prosperous**

"In the October report of the United States Bureau of Mines they call attention to this fact. And if that condition were permitted to continue it would threaten the stability and the prosperity of the industry. And the industry is now in a very prosperous condition.

"That is the problem we are now facing, and we are yet undetermined as to how we are going to solve it.

"Several of the genetlemen here today have made reference to research and refinement in manufacture, and so forth. We have been carrying on in the oil industry a very extensive program along that line. In the research field along with fundamental research, which is entirely separate from that of practical research—we are working on a half million-dollar appropriation.

"This may be a good time for us to finally include our standardization program which we have been working on for many years. And by virtue of those standard products of oil equipment and oil company goods generally we have established a standard for the entire world.

"I am authorized by the directors of the American Petroleum Institute to say to the chairman of this board and to the administration generally that we have absolute confidence in their leadership and that the industry is prepared to carry out any program of co-operation that is decided upon at this meeting.

**Recommends Immediate Action**

"I shall recommend tonight, and I am sure the Institute will carry it forward, that we make an immediate survey of plant construction improvements.

"I might add that the industry expects to spend this year just as much money as it has every other year. But there is no occasion for our drilling more wells than we did, for instance, in 1928 and 1929. In 1928 we drilled in the United States over 22,000 wells. Many of them were not productive. Those will cost all the way from $4,000 per well in Pennsylvania to $90,000 in the California Field. A fair average would be from $20,000 to $25,000 per well, or a total in excess of over $500,000,000.

"That is only the beginning. That has nothing to do with our pipe lines, our field gathering lines, our erection of new tanks, improvements in refineries and general distribution.

"Nor could we add to refineries. We have too many already but we can improve those refineries. This will be a good year to install new plants, new stills. And we can improve along many other lines. And I am sure than the Institute will be glad to co-operate with this organization in carrying out that kind of a program."

## OKLAHOMA P. L. STATEMENT

The Oklahoma Pipe Line Co.'s statement for November shows crude oil runs of 3,092,396.30 bbls., daily average 103,079.88 bbls.; shipments 3,228,945.62 bbls., daily average 107,631.52 bbls.; stocks December 1 3,718,952.23 bbls.

# Why Armstrong Traps replaced cracked valves in a refinery

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Because extensive use in the oil industry had proved their remarkable dependability—absence of airbinding, discharge of grease, scum and sludge, positive valve action, and practically attentionless operation — Armstrong Steam Traps were put in service with very satisfactory results. The illustration shows a No. 2 Special trap draining separator on mail line to coal fired stills and two No. 30 and two No. 31 traps draining branch lines. All Armstrong Traps are small and compact, yet have large capacity. Many companies have standardized on them.

Let us prove to you, under your own conditions, that Armstrong Traps will solve your trapping problems, whether steam or gas. Send the coupon for 90 days trial, without cost or obligation, on as many as you require. Made for pressures to 1350 lbs. and any degree superheat.

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# Roane and Calhoun Counties Active

## Perry County in Southeast Ohio Shares Honors With These West Virginia Districts. Year Without New Pool Discovered

By D. S. Wakenight
*Staff Correspondent, Eastern Fields*

PITTSBURGH, Pa., Dec. 9.—The most active areas at present are in Roane and Calhoun Counties in West Virginia and Perry County in Southeast Ohio. It is probable the year will close without the discovery of a new pool in any part of the eastern fields. Quite a number of wells have failed to find production in commercial quantities. All of the large wells completed are located in the deep sand territory in Southeast Ohio. Taken as a whole the result of development work during the past month was fairly satisfactory. The new production amounted to more than twice as much as at the close of October.

### SOUTHEAST OHIO

In the NE of Section 4, Harrison Township, Perry County, C. M. Foraker and others completed and shot in the Clinton sand a test on the R. D. Cunningham farm. It produced 30 bbls. the first 24 hours. In Section 13, Marion Township, Morgan County, W. S. Harris completed No. 11 on his own farm, a 5-bbl. pumper in the first Cow Run sand.

In Section 12, Cameron Township, Athens County, Griffith & Glazer have a duster on the Robert Smith farm. In Section 33, Berne Township, Mary J. Smith and others completed No. 7 on the Charles C. Curtis farm, also a duster. In Section 8, Palmer Township, Washington County, Robert W. Tawney and others have a very light pumper at No. 7 on the Myron E. Leasure farm. In the same section C. S. Hixon & Co. have a duster at No. 6 on the Willis E. Ellis farm.

In Lot 8, Jackson Township, Muskingum County, the Pure Oil Co. completed in the Clinton sand a gasser good for 500,000 feet on the William McNaught farm. In Sutton Township, Meigs County, the Twenty-Five Oil Association, Inc., has started to drill on the William Carnahan farm. In the same township the Preston Oil Co. is drilling on the Williams farm, and B. M. Tyree has started to drill on the William R. Lott farm.

In the NE of Section 25, Clayton Township, Perry County, the Ohio Fuel Gas Co. completed a test on the J. D. Meenan farm, dry in the Clinton sand at a total depth of 3,490 feet. In Sutton Township, Meigs County, John M. Hazlett & Co. have started to drill on the Belle Spencer farm. In Chester Township, Meigs County, O. L. Barneby has started to drill on the Wesley Genheimer farm.

At Bolin Mills, Knox Township, Vinton County, the Hope Construction & Refining Co.'s test on the Daniel Bass farm is a 5-bbl. pumper in the Berea grit. In Lot 3, Section 10, Medina County, the Oko Oil & Gas Co. has a very light pumper at No. 33 on the Sanford-Watson farm. In Section 10, Hopewell Township, Muskingum County, the Mid-East Gas Co. has a duster in the Clinton sand at a second test on the Porter farm.

#### Drilling and Starting Tests

In Section 10, Wheeling Township, Guernsey County, the Ohio Fuel Gas Co. is due in the Clinton sand on the A. E. Robinson farm. In Washington Township, Tucarawas County, the Gordon Oil Co. is drilling on the Thomas Shearer farm. In Lot 32, same township, George Jewell and others are drilling on the Arthur Sinetta farm. Koontz & Lynch have a rig up on the William Lanning farm. In Section 16, Jackson Township, M. J. Purdy and others have the rig completed for a second test on the Vance Kawa farm.

### WEST VIRGINIA

West Virginia had more completions than Southeast Ohio. In Sherman district, Boone County, Godfrey L. Cabot completed Nos. 33 and 34 on the Federal Coal Co.'s tract. Both are gassers. In the same district the Coal Fork Oil & Gas Co. completed a gasser on the Matthew Burgess farm.

In Cabin Creek district, Kanawha County, Godfrey L. Cabot completed No. 38 on the Huntington Development Co.'s property. It is a gasser. In Union district, Ritchie County, Frank Zicafoose completed in the Gantz sand a duster on the C. V. Iams farm.

On Little Cove Creek, Troy district, Gilmer County, Black & Bennett completed in the Big Injun sand a test on the Perry Woofter farm, good for 400,000 feet a day. On Tanners Creek, DeKalb district, the South Penn Oil Co. completed a second test on the M. B. Woodford farm. It is a light gas well.

In Grant district, Ritchie County, Myers, Lee & Co.'s test on the S. F. McFarland farm is a gasser in the Big Injun sand. In Walker district, Wood County, Alleman & Horner are testing for oil on the Thomas Reckard farm. In Church district, Wetzel County, the Maxon Oil Co.'s No. 13 on the Sarah Shea farm is a light pumper.

#### Roane County

B. M. Burdette's test on the Clara Truman farm in Geary district, Roane County, is a gasser in the Salt sand. In Reedy district, same county, the Heck Oil Co. has a 20-bbl. producer at No. 4 on the H. W. Allen farm. In Ravenwood district, Jackson County, H. C. Zogg & Co.'s test on the George A. Delaney farm is a 20-bbl. pumper in the Berea grit. In Grant district, same county, D. W. Law & Co. have a duster on the Leroy Kirchart farm.

In Lee district, Calhoun County, F. F. McIntosh has a gasser on the James Duskey farm. In Center district the same parties have a gasser in the Big Injun sand on the A. L. Gainer farm. In Washington district the Hope Natural Gas Co.'s No. 7,250 on the Anderson Cottrell farm is dry in the Berea grit, but a light gasser in the Salt sand. In Center district the Carnegie Natural Gas Co.'s second test on the L. Wilmoth farm has been drilled through the Berea grit. It is dry and abandoned.

In Otter district, Braxton County, the United Gas Co.'s second test on the Israel G. Engle farm is a gasser in the Big Injun sand. In Troy district, Gilmer County, C. M. Bennett & Co.'s test on the Perry Woofter farm is a gasser in the Big Injun sand.

#### Lincoln County

In Duval district, Lincoln County, the United Fuel Gas Co. has completed No. 3,920 on the Horse Creek Land & Mining Co.'s tract. In Carroll district, B. B. Jaynes, trustee, has a gasser on the R. D. Adkins farm. In Jefferson district, the United Fuel Gas Co.'s No. 1 on the Shady Estep farm is a gasser. In the same district, the Bark Camp Oil & Gas Co. has a gasser at a second test on the B. C. Ferrell farm. All are gas wells in the Berea grit.

In Scott district, Boone County, the Cameron Oil & Gas Co. has a gasser at No. 10 on the George P. Alderson farm. In the same district, the Mountain State Fuel Co. has a gasser on Wade Stollings farm. In the same district, the same company has a gasser on the M. E. Holstein farm. In the same district, the same company has a gasser on the C. Hill farm. In Washington district, the Owens Bottle & Machine Co. has a Big Injun sand gasser on the Lewis Bias farm.

In Chapmanville district, Logan County, the Peck Oil & Gas Co. has a gasser in the Salt sand at No. 4 on the J. E. Peck farm. In McComas district, Cabell County, the Cambridge Gas Co. has a gasser in the Big Injun sand on the S. Reisman farm. In the same district the same company has a gasser on the Hawkins Perry farm. In Grant district, the Harshbarger Oil & Gas Co. has a gasser in the Big Injun sand on the John Conner farm.

#### Light Wells in Clay County

In Henry district, Clay County, the Virginian Gasoline & Oil Co. completed in the Big Injun sand No. 4 on the Brown, Swan, Goshorn & Butler tract as a 5-bbl. pumper. In the same district, the same company completed in the same formation No. 24 on the Brown, Swan, Goshorn & Butler tract, estimated good for 12 bbls. a day.

In Lincoln district, Wayne County, on Harrison branch of Twelve Pole Creek, 3 miles west of F. H. Yates on the Cowden-Workman farm, in Harvey district, Mingo County, the Wayne United Fuel & Gas Co. completed on the A. W. Wilson farm a gasser good for 500,000 feet, at a total depth of 3,015 feet.

In Church district, Wetzel County, the Hope Construction & Refining Co. has started to drill on the S. S. Main and is rigging up on the J. D. Horner farm. In Liberty district, Marshall County, the same company is rigging up on the Belle Clark farm. In Center district, Wetzel County, the Valley Run Oil & Gas Co. is due in the sand on the Jefferson Miller farm. In Chapmanville district, Logan County, the Thompkins Fuel has a drilling machine on the Harmon White farm. In Sheridan district, Lincoln County, the Hamilton Gas Co. is building a rig on the Charles Hunter farm. In McComas district, Cabell County, the same company has made a location on the Harry Hatfield farm. In Curry district, Putnam County, the Penn Natural Gas Co. has made a location on the H. J. Miller farm. In Ten Mile district, Harrison County, J. R. Dennison & Co. have made a location on the Allen Varner heirs farm.

#### Starting New Work

In Reedy district, Roane County, the Heck Oil Co. is starting another test on the W. H. Enoch farm. In the same district, the Hope Natural Gas Co. is drilling on the Bertha Dixon farm. The Reedy Oil & Gas Co. is rigging up on the G. A. O'Hara farm. In Grant district, Cabell County, the United Fuel Gas Co. has started to drill on the J. K. Suiter farm. In Barboursville district, the same company has made a location on the A. A. Stollings farm. In Church district, Wetzel County, the Carnegie Natural Gas Co. is hauling timbers to locations on the J. D. Bailey and Alice Edgell farms. In Troy district, Gilmer County, the same company has started to drill on the J. C. and E. B. Young farm. In the same district, J. E. Trainer is rigging up on the J. W. Snider farm.

In New Milton district, Doddridge County, the Hope Natural Gas Co. has drilled down to the Gantz sand No. 5,350 on the Scott Gulley farm. It is a very light gasser. In Grant district, Ritchie County, David French & Co. have a rig up on the E. F. Gilmore farm. In Walker district, Wood County, the Penn Royal Oil Co. is rigging up on the Charles Smith farm. In Union district, Ritchie County, the Carnegie Natural

(Continued on Page 82)

# SECOND GOOD WELL COMPLETED IN BARNETT CREEK CHURCH POOL

By Whit
*Staff Correspondent, Kentucky-Tennessee*

OWENSBORO, Ky., Dec. 9.—There is some talk of a shut down in Owensboro for a 30-day period to relieve the congested condition brought about by the large shallow producing wells. The Owensboro Messenger says: "New drilling activities in the Owensboro Field will probably suspend December 15, if a petition signed by many operators here becomes effective under the signature of all of the operators. One or two operators of heavy properties are still unsigned, it was reported. In order to relieve the situation locally, oil men took up the matter as a remedial step, in view of the fact most operations hold up during the holidays, not far off, and continue so until about the middle of January. All but some necessary drilling, now under way, would be stopped. This would not include offsets or contract work. Carl Wiedeman's committee, appointed November 21 at a banquet held by the oil fraternity at Hotel Owensboro, held its initial meeting and had a conference, by long distance telephone, with the manager of the Ohio Oil Co., at Findlay, Ohio. The oil men were assured there would be no cut in price, or other step taken, until a representative of the company should come to Owensboro to discuss the situation with the committee here.

"A congestion of crude oil, occasioned by the recent finding of big pools in the field, and the falling off in consumption of gasoline, due to the season, has created a condition in this field which threatened a price reduction. All available storage capacity of the company here and at its other localities is filled, and the continued heavy production could not be absorbed by the market. Prorating production here was suggested, but this plainly would be impossible, the oil men agreed, as the little fellow, with but a small amount, would be prorated out of business, while the larger producers would be able to drill in numerous wells, because of operating many rigs, and their production would be halted but little. By the time the conference with the Ohio Oil Co.'s representative comes around, the oil men believe the matter will have solved itself in the shutting down of operations for a period of 30 days. Nothing will be lost, it is said, by shutting down drilling as a price cut will have been averted."

#### Big Well at Barnett Creek

The outstanding development of the week was the bringing in by C. M. Root and others of a second big well on the Nancy Wigginton farm, 1½ miles northwest of the Barnett Creek Church Pool, at Buford, Ohio County. A gauge has not yet been taken. It is figured it will be in the 500-bbl. class as was the initial well on the same tract. The Wigginton lease is an offset to the chicken farm of L. L. Trodgen, formerly owned by Joe

(Continued on Page 116)

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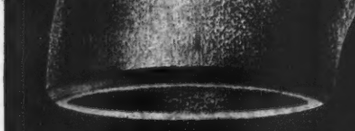

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# Average Producers in Old Lima Field

## Twenty-Eight Completions in Central Ohio Area. Important Wildcats in Monroe County, Indiana. Revival in Illinois

By Whit
*Staff Correspondent, Central West Fields*

FINDLAY, Ohio, Dec. 9.—Development work is just holding its own in the various districts comprising the Central West fields. No large producers were completed outside the Michigan fields. Central Ohio leads all other divisions in operations.

Only two completions were reported from the old Lima Field of northwestern Ohio, both being very good average producers for the old scratched over territory, but there is still much of this kind of territory that has been overlooked in the early rush days of the big field.

Northeast of Lima, in Bath Township, Allen County, C. A. and F. J. Peavey's second test 850 feet from the north and east lines of the C. A. Hoover farm, in the northeast quarter of Section 24, produced 50 bbls. initial. This well found the top of the Trenton at 1,321 feet, went 34 feet into the formation to a total depth of 1,355 feet. B. L. Carmon and others' No. 2 well, 700 feet from the south line and 250 feet from the west line of the W. A. Carroll, NE, Section 13, pumped 35 bbls. at 47 feet in the Trenton at a total depth of 1,406 feet. Neely & Nolan are drilling No. 8 Philo Bassett, Section 13; H. F. Kelley and others drilling No. 2 Charles M. Daubler, Section 14, and Eugene Roalman is starting No. 2 Steve Zelno, same section. In Marion Township, M. P. Colt abandoned No. 9 Joseph Ford, Section 2, and No. 9 J. A. Good, Section 11, same township. In Amanda Township, M. J. Lynch abandoned Nos. 5, 6, 7, 8, 9, 10, 11, 12 and 13, C. B. Harris farm, Section 20.

In Auglaize County, Douchouquet Township, the B. & W. Oil & Gas Co. abandoned No. 1 Charles J. Freck, Section 20. In Washington Township, New Knoxville Gas Co. abandoned No. 1 W. Bierbaum, Section 22, and the Star Oil Co. pulled out Nos. 1 and 2 George Haberkamp farm, Section 20.

### CENTRAL OHIO

Twenty-eight completions were reported from the Central Ohio fields, of which there were 7 dry holes, 14 gas wells, and 7 producers with an initial production of 60 bbls. New work shows a decline for the week there being only 8 locations staked and 23 started spudding, a total in new work of 31, not bad at this season of the year.

In Ashland County, Orange Township, the Ohio Fuel Gas Co. has a fair gas well in No. 1-4,830 on the George Reeve farm, Section 21, and a smaller gas well in No. 2-4,861 on the Walter Lewis farm, Section 29. Same company is drilling No. 1-4,862 on the A. N. Evil farm, Section 20, same township. In Mohican Township, the Kemrow Co. has a 5-bbl. pumper in No. 3 on the Cecil W. Garst, Section 16, at 480-504 feet, which is in the Berea sand. Same company has a dry hole on the C. L. Arnholt farm, Section 6, Montgomery Township, and also in No. 1 on the J. R. L. Brown farm, same section, and owned by the same company.

In Medina County, Harmon and George hit a dry hole on the Schott Brothers' farm, Section 5, Homer Township. Ohio Fuel Gas Co. is drilling No. 1-4,954 on the Alpha B. Rogers farm, Section 19, Harrisville Township.

In Lorain County, Carlisle Township, J. W. Cushing has a light gas well on the W. M. Richards farm, Lot 12, and the Wiser Oil Co. has a good gas well in No. 4 on the J. C. Palmer farm, Lot 14, and is drilling No. 5, same farm, but in Lot 7.

#### Wayne County

In Wayne County, Harmon & George have a fair gas well in a second test on the Elliott M. Myers farm, Section 8, Chester Township, and are drilling No. 1 C. Fetzer farm, Section 23. Same parties drilled an average gas well in No. 1 on the C. Peter Buckholtz farm, Section 26, same township, and Hall and others got a dry hole on the William Daugherty farm, Section 36. In Congress Township, Harmon and George are drilling on the Lewis Howman farm, Section 32, and the Kemrow Co. is drilling on the F. E. Balliett farm, Section 1.

In Holmes County, Hardy Township, the Preston Oil Co.'s No. 2-1,365 on the Phillips Collier farm, Lot 19, pumped 25 bbls. at 3,511-32 feet. Ohio Fuel Gas Co. is drilling No. 1-4,906 on the D. J. L. Miller farm, Sections 20 and 21, Paint Township. Lydic Oil & Gas Co. got a dry hole in a second test on the S. V. Allison farm, Lot 4, Monroe Township, at 835-55 feet, and is drilling No. 6 on the A. R. Mackey farm, Section 6.

In Knox County, Brown Township, the Ohio Fuel Gas Co. drilled a nice gas well in No. 3-4,879 on the Rose Pryor farm, Section 3, and a dry hole in No. 4-4,802 on the Sally Richert farm, Section 1. Same company is drilling No. 1-4,895 on the Herbert Frank farm, Section 12. Upham Gas Co. brought in a very nice gas well in No. 3 on the E. Workman farm, Section 8. Two gas pays were found in this well at 2,644-57 feet, then came a 12-foot break, then another gas pay from 2,669-81 feet, the lower pay being the most productive of gas. Same company found an average gas well in No. 2 on the John and Louis Lower farm, Section 23, Union Township, same county, from 2,862-2,918 feet. In Jackson Township, the Pure Oil Co. is drilling a second test on the Parker Mavis farm, Section 1, and made a location on the Joe Crider farm, Section 9.

#### Coshocton County

In Coshocton County, Franklin Township, the Ohio Fuel Gas Co. is drilling No. 1-4,902 on the Barnes Coal & Mining Co. property, in the third quarter section. Same company is drilling No. 1-4,919 on the Carpenter, Conkle and Wagers property, in Sections 8, 12 and 13, Monroe Township, same county. Bell Brothers' No. 1, on the G. F. and W. E. Stockum farm, in Tuscarawas Township, same county, pumped 12 bbls. initial from 808-45 feet.

Summitt County reported but one completion and that was a test drilled by the Akron Club Co. on the Frank S. Lahm farm, Section 12, Franklin Township, which found broken sand from 3,945-90 feet, and was dry. East Ohio Gas Co. made a location on the N. C. Slater farm, Section 25, same township.

In Licking County, the Preston Oil Co. is drilling a second test on the Thomas Moran farm, Section 10, Fallsburg Township. Arkansas Natural Gas Co. is drilling No. 5 on the Lecta Mizer farm, Section 2, same township. Ohio Fuel Gas Co. made a location on the Wallace Davidson farm, Section 13, and the Whitehill Oil & Gas Co. set a stake for No. 4 on the Ira T. Rine farm, Section 23. In Perry Township, the Settles Oil Co.'s No. 4 on the Nellie Smith farm, Section 17, pumped 5 bbls. from 583-596 feet, and the same company's No. 6, on the Jacob Lothers farm, Section 7, pumped 8 bbls. from 737-51 feet. Bishop, Deetry and others are drilling No. 4 George E. Cotterman farm, Section 11, Franklin Township. In Hanover Township, the Pure Oil Co. is drilling No. 3 on the Homer C. Priest farm, Section 7, and made a location for No. 4 same farm. Hope Construction & Refining Co. is drilling on the Willam H. Richey farm, same township. Wehrle Gas Co. is drilling on the Florence Rector farm, same township.

In Muskingum County, Perry Township, the Wittmer Property trustee, got a fair gas well on the Wilmer A. Dailey farm, Section 15, in the Cinnamon sand at depth of 2,164-95 feet, 2,330 feet and 2,475 feet. Ohio Fuel Gas Co. made a location for No. 2-4,951 on the John C. Hicks farm, in the third quarter, same township. McIntyre and Guthrie made a location on the Mrs. M. Young farm, Section 3, Clay Township. Ohio Fuel Gas Co. staked a location for No. 1-4,963 Edward Swigert farm, Section 4, Falls Township.

#### Athens County

In Athens County, Berne Township, a light gas well was drilled by the Ohio Fuel Gas Co. in No. 2-4,909 W. A. Clester farm, Section 34, in the Berea sand from 1,626-44 feet, total depth 1,640 feet. Charles Fox drilled a 1-bbl. pumper in No. 9 on the Robert Bean farm, Section 18, Cannan Township, in the Cow Run sand from 98-107 feet. State Oil & Gas Co. made a location for No. 10 on the State Hospital grounds, Section 15, Athens Township. Ohio Fuel Gas Co. made a location for No. 1-4,931 on the F. J. Caldwell farm, Section 4, Carthage Township.

In Meigs County, Tyree and others' No. 2 on the Stanley Holter farm, Section 13, Sutton Township, pumped 4 bbls. from the Berea at from 1,783-98 feet, total depth 1,801 feet. Preston Oil Co. is drilling deeper No. 1-1,181 D. A. Dais farm, Section 26, Bedford Township. W. H. Shipe and others are drilling on the Katherine Klein, Section 23, Salisbury Township. H. F. McTaggert and others' second test on the Thomas Smith farm, Section 24, Rutland Township, is a fair gas well in the Maxon sand from 695-700 feet.

In Tuscarawas County, Oxford Township, the Ohio Fuel Gas Co. is drilling No. 1-4,912 on the J. C. Davis farm, Section 21.

In Guernsey County, Wheeling Township, the Capitol Drilling Co. is drilling on the Oscar A. Quillan farm, Section 1. Ohio Fuel Gas Co. is drilling No. 3 on the J. C. Alloway farm, Section 10, as well as No. 2 same farm.

In Pike County, Beaver Township, the A. & P. Oil & Gas Co.'s test on the D. and D. Stewart farm, Section 30, was dry in the Berea from 288-328 feet, total depth 460 feet.

In Morgan County, Union Township, the Buck Run Oil Co.'s No. 21 on the J. A. and A. Rouanzoin farm, Section 2, is credited good for 5 bbls. from the first Cow Run sand from 178-98 feet. In York Township, the Leonard Oil & Gas Co.'s No. 1 Albert L. Giles farm, Section 27, is reported dry. Ohio Fuel Gas Co. made a location on the D. L. Olney farm, Lot 4, Marion Township, and is drilling No. 1-4,948 on the Hobart Miller farm, Section 17, Perry Township.

Pure Oil Co.'s second test on the Homer C. Priest farm, Section 7, Hanover Township, Licking County, is credited with 90 bbls. initial from 2,949-70 feet.

J. R. McBurney and others have a fair gas well in a second test on the McBurney farm, Section 19, Adams Township, Guernsey County, at a depth of 1,144 feet.

### INDIANA

Two important wells were drilled in wildcat territory, only a few miles out from Bloomington, in Monroe County, southwest of Indianapolis, by the Petroleum Exploration Co. This company's test is on the Mary E. Shirley 160-acre farm, in a block of 20,000 acres secured by the Petroleum company, and 5 miles from Bloomington. At a depth of 727 feet the drilling crew brought in a very nice gas well in the Corniferous formation and the company concluded to stop the drill, which was expected to go to the Trenton formation. The Ohio Oil Co. purchased an undivided one-half interest in the block. This eventually means a new gas-producing area for Indiana and being close to Bloomington should be valuable. The second well of the Petroleum Exploration Co. was drilled on the Robert Howard farm, 15 miles directly south of the company's gas well on the Shirley farm, and on a block of 12,000 acres. The Howell farm contains 80 acres, and the well was drilled to a total depth of 1,813 feet. Oil was found in the well from 1,012-1,634 feet. The hole was plugged back to the 1,634-foot level and after given a shot indicates a well from 5 to 10 bbls. from the Trenton lime. In this 12,000-acre block, approximately 3,500 acres, including the Howell lease, were checkerboarded and sold to J. A. Patton, of Lexington, Ky. The Petroleum Exploration Co. leased about 40,000 acres in Monroe and Lawrence Counties and will get busy early in the spring testing it. Good geological structures are known to exist not alone in the two counties mentioned but in Brown, Greene, Jackson, Martin and several other counties near the center of the State.

In Logan Township, Pike County, the Wiser Oil Co.'s second test on the Evert Loveless, Section 23, is rated around 20 bbls. Ohio Oil Co. and Bement abandoned No. 5 Elenor P. Barker farm, Section 6, Madison Township. Reicher and others' No. 2 in the northeast corner of the National City Bank land, Section 16, Veale Township, Daviess County, was dry at 1,195 feet.

### ILLINOIS

There is a revival in development work in the Waterloo Field of Monroe County, in southwestern Illinois, where production was found in the shallow Trenton lime formation a number of years ago and was developed about the same as the Dupo Field in St. Clair County to the north is being developed, but not as actively as the Dupo Field. The territory in western Illinois, along the Mississippi River, is proving quite productive and the oil is found in pools similar to the Stray sand fields of western Kentucky. In Waterloo Township, Monroe County, Trowbridge and others are drilling No. 1 on the John Vogt farm, Section 1. Chambers and others are drilling on the Hy. Hatch farm, Section 24, South Township, and Abbott & Connelly are drilling on the Theodore and George Stockel farm, Section 31, Renault Precinct, same county. Far to the north in Randolph County, which produced a couple of oil producers years ago, two new tests are under way, in Beck & Butler's No. 1 Adolph Schreiber, Section 30, Red Bud Township, and the Ranco Development Co.'s No. 1 Haxie & McKelvey, in Location 4, Section 26, in the northeast part of the county, and 2 miles southeast of Coultersville.

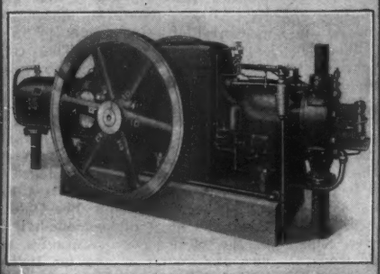
Goldsmith, Taylor and others are putting down a test on the Edward Horstmeyer farm, Section 1, Breese Township, Clinton County.

In the old Robinson Field, in Prairie Township, Crawford County, the Arkan-

(Continued on Page 82)

# COOPER-BESSEMER ENGINES

*As recently announced Cooper and Bessemer Engines are NOW known as COOPER-BESSEMER ENGINES*



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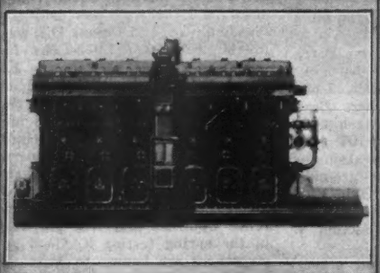
(50-60 B.H.P.)



**TYPE K.R.**
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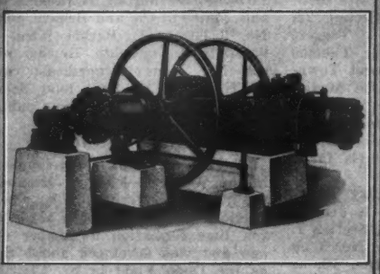

**TYPE O.F.**
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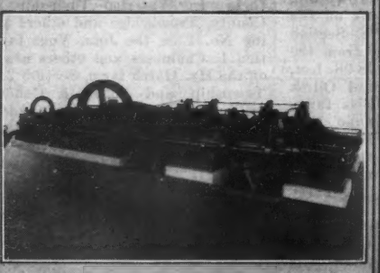

**TYPE-26**
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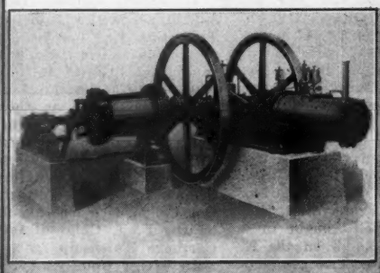
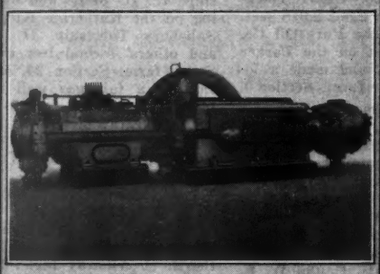


**TYPE O.C.**
(12½ TO 35 B.H.P.)



**TYPE-40**
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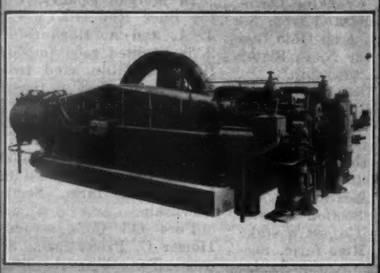


**TYPE-80**
(85 TO 190 B.H.P.)

## CHIEF APPLICATIONS

| TYPE | |
|---|---|
| 16 | Air or gas lift service. Natural gas booster station service. Repressuring oil sands. Compressing still vapors or weathering gases in refineries. Natural gasoline extraction in small plants. Belt-driving electric generators or power equipment. |
| O.C. | Oil well pumping. |
| K.R. | Driving oil line pumps. Direct-driving electric generators. Stationary power plants. |
| O.F. | Pumping oil or gas wells. Drilling oil or gas wells. Belt-driving air compressors or water pumps. |
| 26 | Main line compressor station service. Natural gasoline extraction in very large plants. Electric power station service. General power purposes. |
| 40 | Large natural gasoline extraction plants. Natural gas booster stations. Small main line compressor stations. Air or gas lift for flowing oil wells. Handling still vapors and weathering gases in refineries. Distributing manufactured gas. |
| 80 | Air or gas lift service. Handling still vapors and weathering gases in refineries. Natural gasoline extraction. Natural gas booster station service. Repressuring oil sands. Small main line compressor stations. Direct-driving electric generators or belted service. |

*built for this Industry*
*by*
THE COOPER-BESSEMER CORPORATION
MT. VERNON, O. GROVE CITY, PA.
Branches in all the Principal Oil and Gas Fields

## CHIEF APPLICATIONS

**TYPE 10** — Air and gas lift. Natural gas booster station service. Small main line compressor stations. Repressuring oil sands. Natural gasoline extraction. Handling still vapors and weathering gases in refineries.

**E.C.** — Driving electric generators. Belted power for pumping stations. General power service.

**FC-E** — Oil well pumping. Driving pumping powers. Driving water pumps or air compressors.

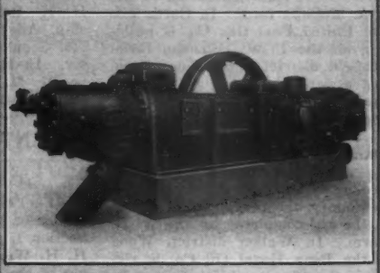
**E P** — Direct-driving electric generators for auxiliary power in oil pumping stations. General power purposes.

**22** — Main line compressor station service. Natural gasoline extraction in very large plants. Electric power station service. General power purposes.

**19** — Main line compressor station service. Natural gasoline extraction in large plants. Medium size electric plant service. General power purposes.

**VERTICAL** — Furnishing power by belt-driving or driving electric generators for: Air lift for flowing oil or water wells. Auxiliary power in gasoline recovery plants and compressor stations. Isolated power plant service. Pumping plant service.

COOPER BESSEMER



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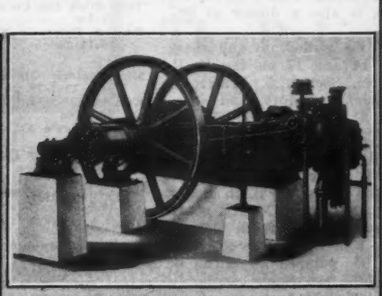

TYPE FC-E
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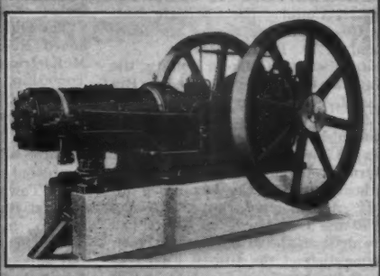

TYPE E.C.
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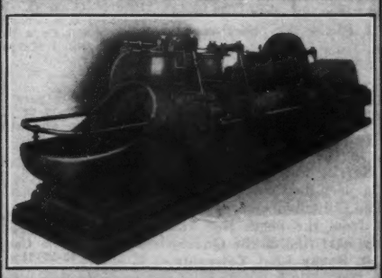

TYPE-19
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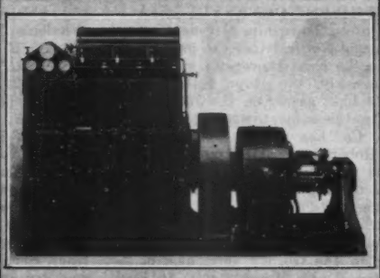
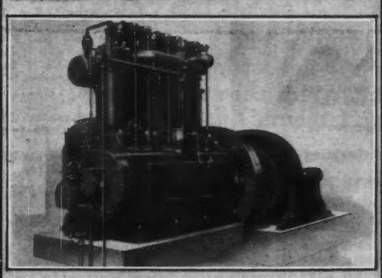
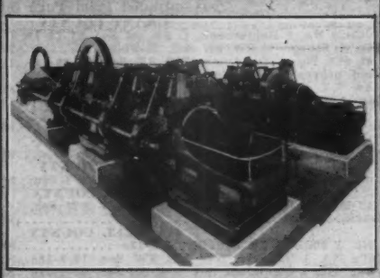


TYPE E.P.
(75 TO 275 B.H.P.)



VERTICAL
(75 TO 565 B.H.P.)



TYPE-22
(500 TO 1200 B.H.P.)

## EASTERN FIELDS

(Continued from Page 76)

Gas Co. has rig material at locations on the F. E. Prichard and T. R. Vincent farms.

In Union district, Clay County, H. Stephenson has started to drill No. 5 on the K. S. Harshbarger farm. In the same district, Davenport is starting a second test on the Thompson Coal & Land Co.'s 1,200 acres. In Geary district, Roane County, I. L. Storts is building a rig on the D. A. Farr farm. The same parties have made a location on the Isabelle A. McCann farm. In Curtis district, the United Fuel Gas Co. is building a rig on the J. W. Hinzman farm. In Smithfield district, Fred Knapp and others have part of the rig material at a location on the I. T. Ferrell farm. In the same district, the United Fuel Gas Co. has made a location on the J. G. Keffer farm.

### Calhoun County

On Yellow Creek, Sheridan district, Calhoun County, the Chemical Oil & Gas Co. has the rig completed on the A. H. Fling farm. In Walker district, Wood County, the Penn Royal Oil Co. is rigging up on the Charles Smith farm. In Union district, Ritchie County, the Carnegie Natural Gas Co. is building a rig on the T. R. Vincent farm. In Union district, Tyler County, Morgan and others are due in the Big Injun sand on the Margaret Rockwell farm. In Church district, Wetzel County, the Carnegie Natural Gas Co. is building rigs on the Alice Edgell and J. D. Bartrug farms.

In Center district, Calhoun County, the Hope Natural Gas Co. completed a Big Injun sand gasser on the Malinda Stevens farm. In the same district, F. F. McIntosh has a gasser in the same formation on the A. Hardman farm.

In Sherman district, Calhoun County, the Southeastern Gas Co. has a rig up on the H. A. Linger farm. In Geary district, Roane County, I. L. Storts has started to drill on the J. N. Keener farm. In the same district the United Fuel Gas Co. has made locations for Nos. 4,979 and 4,080 on the B. L. and J. E. Noe farms. In Reedy district, the Reedy Oil & Gas Co. has started to drill on the G. A. O'Hara farm. In the same district, the Heck Oil Co. is building rig for No. 4 on the W. H. Enoch farm.

### SOUTHWEST PENNSYLVANIA

In Whitely Township, Greene County, the Carnegie Natural Gas Co. has a good gasser on the Enid Bowers farm. In the same township, the Hope Natural Gas Co. has a light gasser on the John Lantz farm. In the same township, the Philadelphia Co. has a fair gasser on the Marion Roberts farm. In Dunkard township, the Convex Glass Co. has a fair gasser in the Big Injun sand on the John Hall farm.

In Richhill Township, Greene County, the Manufacturers Light & Heat Co. has a gasser in the Gordon sand at No. 3,-374 on the W. H. Moore farm. In East Finley Township, Washington County, the Natural Gas Co. of West Virginia has a 5-bbl. pumper at No. 3 on the J. B. Plants farm. In Blaine Township, the National Drilling Co.'s test on the C. S. Crothers farm is a duster. In Peters Township, W. C. Linswey, trustee, has a gasser at a second test on the Jesse Woods farm. In Mount Pleasant Township, the Cowden Oil & Gas Co.'s test on the Scott heirs farm is a duster.

In Green Township, Greene County, Jesse L. Garard has a 5-bbl. pumper in the Dunkard sand at his No. 3 on the H. K. Barb farm. In Buffalo Township, Allegheny County, Peffer & Co.'s No. 5 on the J. Elliott farm is a gasser. In Franklin Township, same county, M. M. Walley has a gasser on the Pleger farm.

## CENTRAL WEST FIELDS

(Continued from Page 79)

sas Fuel Gas Co.'s test in the northwest corner of the A. J. Ikemire farm, NW, Section 1, pumped 25 bbls. from 944 feet. H. H. Weger's test in the northeast corner of the J. M. Williams farm, SE, Section 2, was also dry at 1,050 feet. The Ohio and Silurian Oil Co.'s No. 3 well, 600 feet from the north line and the same distance from the east line of the William Lamb farm, SE, Section 26, same township, is also a duster at 987 feet.

The Ohio Oil Co. pulled out and abandoned Nos. 6, 14 and 17 on the F. E. McKlefresh farm, Section 5, Bridgeport Township, Lawrence County, and abandoned No. 2 F. C. Lawson farm, Section 10, Lawrence Township.

### Dupo Field

Three oil wells above the average were completed in the Dupo Field, in Sugar Loaf Township, St. Clair County, south of East St. Louis. The H. & M. Operating Co., in No. 1 in the southwest quarter of Section 34, pumped an initial of 100 bbls. at 737-94 feet. Same company's No. 2 well, 1,235 feet from the south line and 330 feet from the east line of the Pauline Eckert farm, SW, same section, pumped 150 bbls. from 709-54 feet, and No. 2 well, 825 feet from the south line and 330 feet from the east line of the same farm, produced an initial of 150 bbls. from 668-722 feet. Thomas Whalen's No. 1 Shack lot, Section 21, pumped 55 bbls. from 530-92 feet. James McPeak's No. 3 William Lindemann lot, Section 21, pumped 25 bbls. at 508-50 feet. Gorman and others' No. 2 S. Thielman, SW, Section 34, pumped 10 bbls. from 686-743 feet. Billman & Baumfelder's No. 1, in the southwest corner of the Louis Harris, Section 24, same township, was a deep test and was dry at 1,560 feet. The Columbia Quarry Co.'s test, 1,120 feet from the north line and 660 feet from the east line of the Quarry tract, Section 10, Sugar Loaf Township, was dry at 810 feet.

## WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

(Continued from Page 50)

**GRANT COUNTY**

Gypsy Oil Co.'s No. 1 Belderbeck, C SE SE Sec. 27-28-7w. Cored 4,250-65 ft.; water.
Bailey's No. 1 Stover, C SW SE Sec. 20-27-5w ..... Rig on ground.
Baucher et al's No. 1 Deadman, SW SE Sec. 12-28-4w. . Drlg. 4,140 ft.
Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w ..... Shut down 5,640 ft.
Otstot's No. 1 Tabor, C NE NE SE Sec. 23-26-3w ..... Drlg. 2,100 ft.

**GREER COUNTY**

Helmerick & Payne's No. 1 Henck, NW cor. Sec. 23-6-24w. Fishing 2,205 ft.
I. T. I. O. and others' No. 1 fee, C SW NE Sec. 17-6-24w ..... Straightreaming 1,903 ft.

**HARMON COUNTY**

S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w. . Shut down 625 ft.

**HARPER COUNTY**

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w ..... Fishing 6,161 ft.

**HASKELL COUNTY**

Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e ..... Shut down 1,200 ft.
Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e. . Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e. . Shut down 2,100 ft.

**HUGHES COUNTY**

Wright et al's No. 1 Ott, SE SW Sec. 16-5-11 ..... Rig.
Canady et al's No. 1 Kanard, NW SW Sec. 29-9-12 ..... Shut down 1,675 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 ..... Rig on ground.
McCullough Oil Co.'s No. 1 Scott, NW NE Sec. 23-6-8 .... Abandoned 4,610 ft.

**JACKSON COUNTY**

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

**KINGFISHER COUNTY**

Superior Oil Co.'s No. 1 Story, SE cor. Sec. 25-19-5w .... Fishing 6,285 ft.
Gait Brown's No. 1 Wolf, NW SE Sec. 6-16-7w ..... Shut down 6,015 ft.

**KIOWA COUNTY**

J. D. Flannery's No. 1 Renave, SW cor. Sec. 25-6-18w ... Drlg. 800 ft.
Hyde et al's No. 1 Jones, SE cor. Sec. 23-3-18w-50 ..... Shut down 490 ft.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 30-7-17w. . Drlg. 1,165 ft.

**LEFORE COUNTY**

Red Bank Oil Co.'s No. 1 fee, SE SW NW Sec. 23-9-24. . Fishing 5,400 ft.; 15,000,000 ft. gas.

**LATTIMER COUNTY**

Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e ..... Shut down 1,450 ft.
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 ..... Total depth 4,020 ft.; plug back to 2,550 ft.

**LINCOLN COUNTY**

Morgan & Flynn's No. 1 Johnson, SW NE Sec. 1-16-5 .... Drlg. 3,845 ft.
Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 ..... Drlg. plug 5,100 ft.

**LOGAN COUNTY**

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w. . Shut down 3,970 ft.

**McCLAIN COUNTY**

Homaokla Oil Co.'s No. 1 Newsome, SE NE NE Sec. 16-5-3 ..... Drlg. 3,550 ft.

**McINTOSH COUNTY**

Jennings Bros.' No. 1 Crabtree, NW SW NE Sec. 31-10-14 ..... Drlg. 2,450 ft.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shot 240 qts. 5,446-5,559 ft.; shot went off up hole; fishing.

**MUSKOGEE COUNTY**

Sessions' No. 1 Richard, SE cor. SW Sec. 29-13-19 ..... Spudding.
Mid-Western Oil Co.'s No. 1 Unknown, C NW SW Sec. 31-12-19 ..... Location.
Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 .... Shut down 1,011 ft.
Cooper-Badget's No. 1 Young, NW NE NE Sec. 7-12-20e .. Shut down 50 ft.

**NOBLE COUNTY**

Peerless et al's No. 1 Wentz, NW SW Sec. 22-22-1 ..... Drlg. 2,670 ft.

**OSAGE COUNTY**

Lewis Prod. Co.'s No. 1, NW cor. Sec. 23-26-7 ..... Drlg. 2,525 ft.

**OKFUSKEE COUNTY**

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 ..... Shut down 2,795 ft.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10 .. Drlg. 3,640 ft.

**OKLAHOMA COUNTY**

Magnolia and Ramsey's No. 1 Johnson, C NE SW Sec. 35-13-3w ..... Drlg. 600 ft.
Ryan & Martin's No. 1 Lawton, NE NW Sec. 3-11-2w ... Drlg. 2,895 ft.
Tom Slick Oil Co.'s No. 1 Martin, C NW NW Sec. 13-13-1w ..... Drlg. 6,200 ft.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w ..... Fishing 4,750 ft.

**PITTSBURG COUNTY**

Mid-Western Oil Co.'s No. 1 Unknown, SE SW NE Sec. 11-7-18 ..... Drlg. 975 ft.
Empire O. & R. Co.'s No. 1 Williams, C NE SE Sec. 33-7-16e ..... Fishing 3,120 ft.
Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12 ..... Drlg. 3,300 ft.

**PONTOTOC COUNTY**

Indian Territory Illuminating Oil Co.'s No. 1 McFarland, NW cor. Sec. 4-5-5 ..... Wilcox 3,142-45 ft.; drlg. plug; water showing.
Independent and Shaffer's No. 1 Moses, NE SE SW Sec. 10-5-4 ..... Wilcox 3,332-41 ft.; show water; plugging back.

**POTTAWATOMIE COUNTY**

Keister & Manning's No. 1 Rowlett, SW SE NE Sec. 30-8-4 ..... Rig.
Payne Drlg. Co.'s No. 1 Bullock, SE NE Sec. 22-6-3 .... rg. 2,780 ft.
Lippa Drlg. Co.'s No. 1 Pittman, SW NW Sec. 3-8-4 .... Drlg. 4,395 ft.
Twin State's No. 1 Ray, NW SW Sec. 3-8-4 ..... Drlg. 3,710 ft.
Prairie O. & G. Co.'s No. 1 Bodkin, SW cor. Sec. 26-8-4 .. Drlg. 3,870-71 ft.; swabbed 50 bbls.
Keister & Manning's No. 1 Tibbs, NE SW Sec. 9-8-4 .... Drlg. 4,589 ft.

**ROGER MILLS COUNTY**

Prairie O. & G. Co.'s No. 1 Mingo, SE NE Sec. 25-6-5 .. Drlg. 3,041 ft.
Bucy & Stone's No. 1 Williams, C SW Sec. 23-12-24w .... Rig.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w .... Shut down 1,800 ft.

**SEMINOLE COUNTY**

Prairie O. & G. Co.'s No. 1 Harjo, NE SW NE Sec. 25-6-7 ..... Drlg. 2,620 ft.
Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 25-5-5 .... Location.
Harris' No. 1 Harjoche, SE NE SE Sec. 8-6-6 ..... Wilcox 4,047-52 ft.; plugged back to 2,950 ft.; ripped csg. 2,860-65 ft.; flowed 170 bbls.

**SEQUOYAH COUNTY**

Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-22 ..... Shut down 1,260 ft.
Buffington and others' No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Shut down 3,000 ft.

**WOODS COUNTY**

Peerless O. & G. Co.'s No. 1 Unknown, C NW NE Sec. 23-28-16w ..... Cleaning out 1,130 ft.
S. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Drlg. 6,010 ft.
Sinclair Oil & Gas Co.'s No. 1 Showwalter, C SW SW Sec. 33-27-16w ..... Drlg. 5,795 ft.

**WOODWARD COUNTY**

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-23-17w ..... Shut down 1,387 ft.
Prairie Oil & Gas and others' No. 1 Wilber, NE cor. NW Sec. 23-23-17w ..... Drlg. 5,875 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w ..... Fishing 4,967 ft.
Burgoyne Bros.' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.

**SOUTHERN OKLAHOMA**

**ATOKA COUNTY**

J. W. Ernest, Sec. 1-1-14 ..... Drlg. 800 ft.
Bryant-Croxton's No. 1 Mason, NW NE NW Sec. 4-1s-14. Drlg. 575 ft.
Bookshire's No. 1 Guinn, NW cor. Sec. 13-3s-10 ..... Drlg. 100 ft.

**BRYAN COUNTY**

Marshall's No. 2 fee, C SW SE NW Sec. 26-5s-7 ..... Shut down; 6-in. csg. 265 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Underreaming 6-in. csg. 1,890 ft.

**CARTER COUNTY**

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Shut down 1,500 ft.

**CHOCTAW COUNTY**

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19e ..... Shut down 1,346 ft.

**COTTON COUNTY**

Wirt Franklin's No. 1 Bandy, NW cor. Sec. 4-4s-16w .... Drlg. 3,392 ft.

**JOHNSTON COUNTY**

Smith & Knisely's No. 1 Lane, E half Sec. 29-1s-7 .... Shut down 2,254 ft.

**McCURTAIN COUNTY**

Utopia Pet. Co.'s No. 1 Unknown, SE NW Sec. 14-9s-25. . Location.
Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 ..... Shut down 1,490 ft.

**STEPHENS COUNTY**

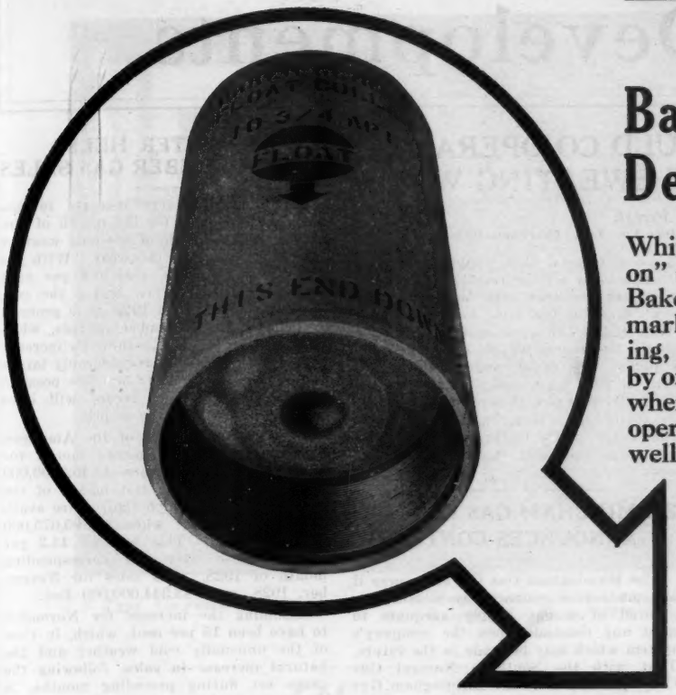
Smythe et al's No. 1 Johnson, NE cor. Sec. 30-2-8w .... Shut down 25 ft.
Porter & Monahan's No. 1 Robberson, SE NW Sec. 23-3s-4w ..... Reaming 3,513 ft.

**TILLMAN COUNTY**

Allen Bros.' No. 1 Howell, SW NE Sec. 13-1-17w ..... Shut down 610 ft.
Staley-Chenault's No. 1 Crane, NE SE Sec. 25-4s-14w .. Shut down 2,000 ft.
Nance et al's No. 1 Massie, NE NW Sec. 36-1S-6w .... Location.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-16w ..... Shut down 2,535 ft.

**OKLAHOMA PANHANDLE**

Skaer's No. 1 Hitch, NW cor. Sec. 25-1-15e ..... Shut down 250 ft.




# Baker Cement Equipment Has Demonstrated Its Superiority

While it is true, as a general proposition, that new ideas "catch on" slowly among oil operators, this has not been the case with Baker Cement Equipment, for it so quickly demonstrated its marked superiority over cast-iron equipment for Floating, Guiding, and Cementing, that it was given an enthusiastic welcome by oil men all over the world. Today you will find it in use everywhere, by reason of its much greater efficiency and economy in operation. It has made good on the job, in some of the deepest wells ever drilled.

Baker Cement Equipment, like all tools and equipment bearing the name "Baker", is safe and dependable—it has a wide margin of safety built into it, that takes care of even the most unexpected demands.

## The Baker Cement Float Collar

The Baker Cement Float Collar, here illustrated, is a Baker-Formula Concrete plug cast and anchored in rounded grooves in a special seamless steel coupling, 16″ to 18″ in length. The concrete plug contains a specially-designed Celoron Ball Check Valve and Valve Seat.

The Baker-Formula Concrete used in this Collar has a compressive strength of 6002 pounds to the square inch—as compared with 2800 to 3700 pounds for ordinary good concrete. The Celoron Ball Check Valve has been tested to 5500 pounds to the square inch. These strengths are ample for the pressures encountered in even the deep wells, and will give absolutely reliable protection on long strings.

In the Kettleman Hills District, this Float Collar and the Baker-Burch Cement Float Shoe were used to land a string of 11⅜″ 60-pound casing, weighing 330,000 pounds and the string was set safely on bottom without a single hitch. This kind of performance is the usual thing with Baker Cement Equipment and is the reason for its enthusiastic welcome by oil men.

## Baker Cement Line Is Complete

The Baker Cement Floating, Guiding and Cementing Equipment line is complete, and includes the following items: Baker-Burch Cement Float Shoe, Baker Cement Float Collar, Baker-Burch Side-Hole Cement Float Shoe, Baker-Burch HIGH Side-Hole Cement Float Shoe, Baker Cement Guide Casing Shoe, Baker Cement Baffle Collar with Hole, Baker Cement Solid Baffle Collar, and Baker Cement Bull Plug Casing Shoe.

You cannot buy insurance against accident, in the form of an insurance policy, but you can go far in this direction and prevent many otherwise unavoidable accidents by standardizing on the use of Baker Cement Equipment.

Baker Cement Equipment is the only line of its kind and it is covered by Patents Granted and Patents Pending. Once used its superiority will be at once evident. Specify it and see that you get it.

*WRITE FOR LITERATURE: — For the sake of efficiency, economy, and safety, you should have an accurate and complete knowledge of Baker Cement Floating, Guiding, and Cementing Equipment. Complete descriptive literature will be sent on request. WHY NOT ASK FOR IT NOW?*

Detailed Information Will Be Mailed on Request

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*Export Sales Office*
25 Broadway, New York City

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*California Branches*
Coalinga, Ventura, Taft, Bakersfield

*Mid-Continent Distributors*
B. & A. SPECIALTY CO.
220 E. Brady St., Tulsa, Okla.
2301 Commerce St., Houston, Tex.

Don't Use Cast-Iron Equipment — Cement is Stronger and Better

# Natural Gas Developments

## NEW RATES SUGGESTED BY FORT WORTH GAS CO.

FORT WORTH, Tex., Oct. 7.—The proposed boost in domestic gas rates here, outlined in a memorandum letter from the Fort Worth Gas Co. to city officials, would mean an increase in annual revenue of $232,563 to the utility.

The letter, signed by J. H. Barwise of gas company counsel, sets forth the utility's conception of the long-fought rate case, which was decided against the city recently by a three-judge federal court. It invites the city to confer with the gas company in an effort to work out an amicable settlement.

The communication sets up a new valuation of $4,973,941 on the company's plant, properties and business, as against the valuation of $3,846,979 set up by W. H. Sanford, special master in the gas case, as of January 1, 1928. The company, using Sanford's valuation, adds to its capital additions since January 1, 1928.

The proposed new rate in the letter is 15 cents for the first 800 feet of gas, with a $1 minimum bill. All additional gas would cost 6¾ cents a hundred. This is practically double the existing rate for the first 1,000 feet, but figures slightly less than the rate the company asked of the Texas Railroad Commission two years ago when calculated on a basis of 1,000 feet. The rate asked of the commission figured $1.50 for the first thousand. The present suggested rate figures $1.33⅓ for the first thousand.

The existing rate is 75 cents for the first 1,000 feet, less 10 per cent for prompt payment of bills. By taking advantage of the 10 per cent deduction, the consumer pays 67½ cents for the first 1,000 feet. The minimum bill is 50 cents.

The schedule structure placed before the Railroad Commission was 20 cents a 100 for the first 500 feet, 10 cents a 100 for the next 500 feet and 6¾ cents a 100 for all additional gas.

The three-judge court, which restrained the city from interfering with the utility's collection of a reasonable rate, declared that Sanford erred in not taking into account, in arriving at his valuation, capital additions since January 1, 1928. Sanford found that the period after that date was abnormal and not a criterion for future years. The new suggested schedule sets forth a rate of return of 8 per cent plus a depreciation reserve rate of 3.6 per cent.

The tribunal which passed on the case found that a 7 per cent rate of return is not confiscatory but that the 2 per cent depreciation reserve charge fixed by the master was too low. This latter figure was raised to 3.6 per cent.

The city contends that the court did not intend the gas company to ask a higher rate of return than 7 per cent. The gas company, however, is of opinion that, since the court declared the company is entitled to a "reasonable" return, it did not intend to set 7 per cent as a figure beyond which the gas company could not go.

The utility's attorneys point out that there is a vast difference between a rate which is "nonconfiscatory" and one which is "reasonable." The total rate of return, 8 per cent plus 3.6 per cent is 11.6 per cent—on the total valuation.

The new schedule would become effective December 15.

The gas company does not concede the correctness of the master's findings as to valuation nor that it is bound under the decree of the court in the matter of valuation.

## GAS COMPANIES SHOULD CO-OPERATE TO ELIMINATE SWEATING WALLS

By Lloyd French

Appliance Foreman, Union Natural Gas Co., Ltd., Chatham, Ontario*

The principal causes of sweating we find to be due to poor flue conditions. Too small flue at heater to carry off products of combustion, is largely eliminated, as most reliable manufacturers are having all their heaters and appliances A.G.A. or C.G.A. tested. Too small flue from the heater to the chimney, or possibly long vent passing through cold room into cold chimney. This is sure to cause condensation. In these cases we found it necessary to enlarge the flue pipe from the heater to the chimney to 6 inches where 3 or 4-inch had been used. Where flue pipe passes through a cold room condensation can be eliminated by insulating the pipe. This may be done with asbestos covering, or by passing the flue pipe through a larger one.

Too small flue in chimney with too many vents. Plugged chimney due to loose bricks falling inside, or birds' nests being built within. Too low chimney or trees or other buildings too close, causing down drafts. In other cases mortar had gone from between the bricks allowing cold air to seep in, obstructing the warm gases or by-products from readily passing off up the chimney.

In some instances where customers obtained open flame heaters and installed them themselves and complaints came in of dampness of the windows, we found the burner not properly adjusted and no flue pipe on the heater. No open flame heater should be used without a vent. I would recommend the closest co-operating possible between the gas companies and the local plumbers and fitters, eliminating the possibility of heaters and appliances being set up with flue connections.

Condensation cases, after being eliminated, should not be forgotten, rather a check-up should be made occasionally by our service departments. This later means satisfied customers and good will toward our companies.

*Before Natural Gas and Petroleum Association of Canada convention, London, Ontario.

By H. W. Durgy†

In some instances sweating of walls and windows is caused by the air in the room being heated too rapidly, more so at least than the walls, windows and objects of furniture and when this warm air strikes these colder surfaces the water vapor condenses to the dewpoint and deposits moisture or drops of water on them. This condition can be prevented by the rapid circulation of air over the surface on which the sweating occurs or by ample ventilation, also by heating the room more gradually.

A quantity of water vapor is always produced by complete combustion, and this is the greatest source of sweating of walls and windows. Some estimates place the amount of water vapor as high as 2,000 cubic feet in the products of combustion given off by burning 1,000 feet of natural gas. If this were condensed we would have approximately 10 gallons of water. This water vapor must be carried off. The best means is through a flue pipe or ample ventilation. Our sales representatives should be thoroughly instructed as to the troubles from sweating.

Through co-operation with builders and architects we could devise some means of utilizing the space between walls now going to waste by installing flue pipe of a suitable metal that would be of ample size to carry off the products of combustion from an open type heater and connect same in the attic to the chimney. With flues of this nature extending down to the baseboards we can accomplish two things: We could connect the heater with a vent pipe, doing away with the unsightly flue pipe that most ladies abhor in their living rooms and at the same time carry off the products of combustion giving us the most trouble with dampness.

†New business manager, Brantford Gas Co., Ltd., Brantford, Ontario.

## BIRMINGHAM GAS CO. ANNOUNCES CONTRACTS

The Birmingham Gas Co. announces it has made two contracts by which it is assured of a gas supply adequate to meet any demands upon the company's system which may be made in the future. That with the Southern Natural Gas Corp. provides that the Birmingham Gas Co. and its affiliate under Hulswit management, the Industrial Gas Corp. may jointly purchase natural gas in sufficient quantities to meet any requirements in excess of the aggregate of 5,000,000,000 feet of coke oven gas which the two companies are now purchasing annually from the Sloss-Sheffield Steel & Iron Co., and from the Alabama By-Products Corp., respectively. The other contract, which takes the place of the one now in force with Sloss-Sheffield, provides that the Birmingham Gas Co. may annually purchase a total of two and a half billion feet of coke oven gas from the steel company.

The Southern Natural Gas Corp. is constructing a 450-mile natural gas trunk pipe line, now about 90 per cent completed, from the Monroe and Richland natural gas fields in Louisiana across the states of Mississippi and Alabama into Georgia, where natural gas will be introduced into Atlanta. Southern Natural Gas Corp. was also desirous of obtaining a contract to supply natural gas in the Birmingham district. It first attempted to interest the local companies in switching from their present sources of gas supply, the two coke oven gas producers, to natural gas on a 100 per cent basis. After extended negotiations, the present contract was evolved. The Birmingham Gas Co. is a distributor and not a manufacturer of gas.

### MONTERREY USING GAS

South Texas natural gas is now being used in old Monterrey in Mexico, United Gas Co. having completed its natural gas line from the Jennings Field in Zapata County to the Mexican city.

The line will be operated in Mexico by the Cia. Mexicana de Gas, S. A., a subsidiary of United Gas, organized under Mexican law. The Mexican subsidiary will wholesale the gas to the public service company at Monterrey for local distribution in that city, including major industrial organizations for fuel.

The line is 143 miles long, is laid with 13¾-inch (outside diameter) pipe, and under the well head pressure in the Jennings Field should have a maximum pressure of 21,000,000 feet daily. This volume can be increased by artificial compression.

This is the first international pipe line of any kind to enter Mexico from a foreign country.

## EARLY WINTER HELPS NOVEMBER GAS SALES

An unusually large increase in gas sales was reported for the month of November as the result of the cold weather which has prevailed this year. With gas sales averaging this year 9.4 per cent higher than they were during the corresponding months of 1928, it is generally believed the November returns, when they are tabulated, will show an increase over November, 1928, considerably larger than this. It is held to be quite possible that a monthly sales record will have been established for the month.

According to figures of the American Gas Association, the record month for 1928 was January, when 46,462,000,000 feet were sold. The last month of the present year for which figures are available is September, when 33,895,675,000 feet were sold. This was an 11.2 per cent increase over the corresponding month of 1928. Gas sales for November, 1928, were 43,344,000,000 feet.

Assuming the increase for November to have been 15 per cent, which, in view of the unusually cold weather and the natural increase in sales, following the curve set during preceding months, is considered to be a conservative estimate, gas sales for the month should have reached 49,845,600,000 feet, higher than any single month of 1928. As a matter of fact, it is held to be not unlikely that total gas sales for the entire country may have passed the 50,000,000,000 feet mark.

Gas utilities during the past year have been laying considerable stress on the sale of gas-fired house-heating appliances. The winter months, they believe, should witness the initial fruits of this effort. It is also felt that in many sections of the country where householders do not usually expect cold weather at such an early date gas may have been resorted to in large quantities by those who had not yet made their winter arrangements for steam heat.

### MUST REDUCE FLOW

CASPER, Wyo., Dec. 7.—The Crystal Carbon Co., operating on the gas from the Lake Basin Field in Stillwater County, southern Montana, was ordered by the Montana Public Service Commission to reduce the flow of gas from its wells to 50 per cent or less of the production from the wells. The carbon black company appealed from the order and asked a rehearing but the order was affirmed and the Carbon company was enjoined to reduce its input of gas into its plant to conform with the order. The Delmar Oil Co. appeared against the carbon black firm and claimed the operation of the plant was fast drawing all the remaining gas from the field.

### BIG GASSER IN KINGSVILLE

KINGSVILLE, Tex., Dec. 9.—A gasser yielding a daily output of from 25,000,000 to 30,000,000 feet of natural gas at a rock pressure of 150 pounds was added to the three producing wells of the Kingsville gas field when the Humble Oil & Refining Co.'s Kleberg No. 8 was brought in at a depth of 2,400 feet.

Kleberg No. 8 was drilled as an offset to Flato No. 2, the best producing oil well in the local field. After reaching a depth of more than 3,000 feet without penetrating sand bearing oil, the hole was plugged back to the 2,400-foot level, where a heavy strata of natural gas had been cased off.

The well will be connected with the pipe line of the Tex-Mex Natural Gas Co.

*A Type XG compressor which has been in almost continuous operation since its installation at an Indiana oil property in September, 1928.*

# The EFFICIENCY of I-R Compressing Cylinders

# The ECONOMY of Gas Engine Drive

These new oil field compressors—the 180-hp. Type XG, and the 90-hp. Type XOG—combine in direct-connected units the high efficiencies of Ingersoll-Rand compressing cylinders and the economies of 4-cycle gas engine power.

Designed for simplicity, dependability, and accessibility, they are suitable for a wide range of service.

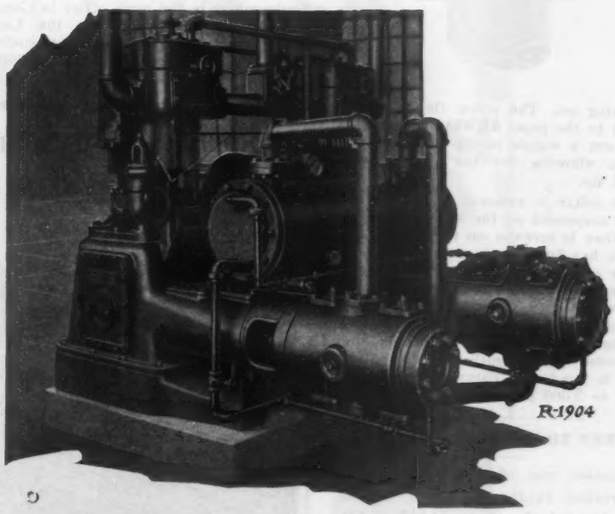
They are conservatively rated and deliver their full horsepower in compressor capacity under varying pressure conditions.

Any combination of compressor cylinders to meet your needs can be furnished.

Foundation and floor space requirements are small.

Power-end parts are completely interchangeable.

These units will give the same reliable service that has always characterized Ingersoll-Rand compressors.




*Type XOG compressor, with XOB compressing cylinders.*

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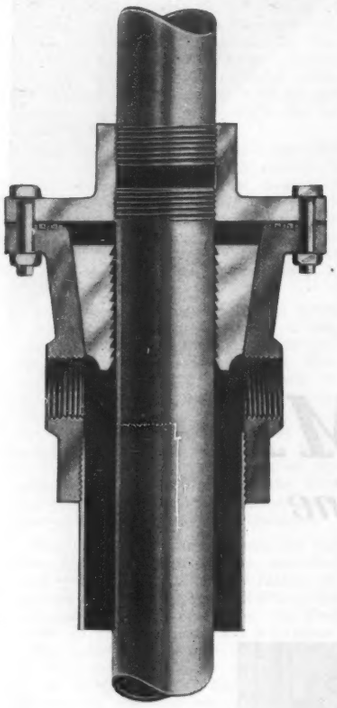
954-C

# EQUIPMENT AND SUPPLIES

## BREWSTER CO. CONTROL HEAD EASY TO OPERATE

The Brewster control head, manufactured by the Brewster Co., Inc., Shreveport, La., and designed for use where two or more strings of casing are connected, is easy to operate. A set of slips is used to hold the strain on the string



of casing set. The screw flange is connected to the pipe. All that is necessary is to cut a nipple to top out the exact length, allowing for the stretch when picked up.

The collar is removed while the casing is suspended on the slips. The flange head then is screwed on the nipple. After this has been done, a strain is taken on the casing, which allows the slips to release. A bar is inserted through the gas outlets and used as a lever to raise the slips while the flange is seated in place. The bar is removed, allowing the slips to become engaged with the casing. This head is made of chrome nickel steel tested to 3,000 pounds working pressure.

### MYERS TO REPRESENT GRANT

Increased use of the Grant rotary underreamer in the California Midway fields has led the Grant Oil Tool Co., Los Angeles, Calif., to appoint L. O. Myers as permanent representative in that area. Mr. Myers is an "old hand" in the drilling and production end of the oil industry and is familiar with the various problems for which underreaming offers a solution. He will maintain headquarters in Oil Center, Calif.

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Specification sheets just issued by the Lincoln Electric Co., Cleveland, Ohio, cover the company's 300-ampere welder in its various types, including stationary platform, portable truck, gasoline-engine driven and belt-driven.

### CHANGES IN METER COMPANY

J. H. Hill, for 22 years connected with the Pittsburgh Equitable Meter Co., the last 15 years of which as district manager with offices in the Union Bank building, Los Angeles, Calif., has resigned to devote his entire time to private business interests. Walter H. Davis, who for 15 years has represented the company in Kansas and Missouri, has been appointed to succeed Mr. Hill as district manager in Los Angeles.

The Pittsburgh Equitable Meter Co. has leased a large building at 1918 East Seventh street, Los Angeles, in the heart of the industrial district of the city, to be used as the company's Pacific Coast offices and plant. A stock of water, oil, gasoline, gas meters and gas regulators will be carried with repair parts for these products.

Modern shop equipment will be installed and men trained by years of experience at the company's main factory in Pittsburgh, will be transferred to the Los Angeles branch. Assembly of all company products will be done in this branch factory plant.

### DRIGGS JOINS MACCLATCHIE

Harry W. Driggs, veteran oil man, has joined the sales staff of the MacClatchie Manufacturing Co., Compton, Calif., which makes oil field specialties. Mr. Driggs went to California 20 years ago, after having worked in the West Virginia fields. He was associated with several equipment concerns on the Pacific Coast and then spent two years in South America for the Standard Oil Co. of New Jersey, supervising the change of the Infantas Field, Barranca Bermeja, from cable tools to rotary. With his headquarters in the main office in Compton, Mr. Driggs will cover the Long Beach Field for MacClatchie, according to J. Warren MacClatchie, head of the company.

## BOUGHTON MANAGER OF PIPE LINE DEPARTMENT

McEverlast, Inc., Los Angeles, Calif., manufacturer and distributor of protective pipe line coatings, has made Roger C. Boughton manager of its pipe line

Roger C. Boughton

department and Mr. Boughton's advice is to be made available for the company's clients who need help in meeting gas, pipe line and corrosion problems. Mr. Boughton, who is 37, first went to work as a pipe fitter's helper in the California oil fields, later joining the Pacific Gas & Electric Co. as draftsman. Leaving this corporation, he entered government service with the Emergency Fleet as technical assistant. Later he was taken east by the Union Oil Co. of Delaware, in connection with its expansion program. When this program was curtailed by revolutionary conditions in Mexico, he joined the Pan American Petroleum & Transport Co. as a supervising engineer. Then he was engaged by private interests to travel in Great Britain and the European continent as an engineering observer. Upon returning to the United States, he was for a short time gas distribution superintendent for the King's County Lighting Co. of New York, but being desirous of returning to California, he left this position and took one with the Los Angeles Gas & Electric Corp. During his connection with this company he made a special study of underground pipe protection, methods for applying and testing, and the handling of pipe with coatings on them. He also specialized in soil surveys and their relation to the degree of pipe protection necessary.

## COLD BENDING 20-INCH PIPE WITH TRACKSON TRACTOR

Cold bending pipe is one of the operations performed with Trackson McCormick-Deering crawler tractors. The picture shows how this is accomplished with two Trackson units equipped with Seminole pipe handling booms, which are owned by Kelly-Dempsey & Co., contracting concern of Tulsa.

One of the tractors is placed at right angles across the ditch, while the other unit, shown with a stiff leg supporting the boom and the tongs clamped to an end of the pipe, merely lifts the pipe against the weight of the tractor straddling the ditch. This weight is sufficient to make a cold bend in the pipe.

While cold bending is common in pipe line work, it is unusual to bend pipe as large as 20 inches in diameter, the size of that shown in the picture, without heating it.

### BUSINESS NOTES

The U. S. Wind Engine & Pump Co., Kansas City, Mo., has been appointed a distributor of Pomona turbine pumps in Missouri, Kansas and Oklahoma. The Pomona Pump Co. reports that 14 of its pumps were installed recently by a large refinery in Louisiana.

A bright red display case distributed by the Oster Manufacturing Co., Cleveland, Ohio, is only 10 inches wide and 7 inches deep, but it holds 72 complete sets of standard dies that will fit any 1-inch to 2-inch die stock. On each side of the front of the case are two sample die boxes and between these is a sample die which may be detached for examination.

The Refinery Supply Co. of Tulsa and Dallas has been appointed midwestern representative of the Goslin-Birmingham Manufacturing Co., Inc., New York, maker of the Vallez filter.

R. N. Grinnell of the Robert N. Atmore Co., Tulsa, manufacturer of oil pumping machinery, has bought a new 1930 "Bellanca" Pacemaker, made by the Bellanca Aircraft Corp. Mr. Grinnell will use the plane privately as well as in connection with his business.

The Marion Machine, Foundry & Supply Co., Marion, Ind., has opened a direct factory branch for domestic and export trade in the Hudson Terminal Building, New York, with Robert A. Young as manager.

The Waukesha Dispatch Six, the latest addition to the line of six-cylinder engines made by the Waukesha Motor Co., Waukesha, Wis., is built in two sizes, 219 cubic inches and 255 cubic inches displacement, and embodies improvements that have been worked out in the company's research and testing laboratories. The new engine is to be exhibited at the National Automobile Show in New York.

The Perfex Corp., Milwaukee, Wis., manufacturer of engine-cooling radiators for heavy-duty service, will exhibit its complete line of cellular and tubular radiators at the road show in Atlantic City January 11 to 18, 1930. Representatives of the company at the show will be Roger Birdsell, vice president and sales manager; A. C. Owen, Cleveland representative, and R. W. Wilson, sales engineer.

The Erie Railroad has ordered a 600-horsepower oil-electric rail car from the Westinghouse Electric & Manufacturing Co. The car body, built by the St. Louis Car Co., will be divided into a power plant room, a mail compartment and a baggage compartment.

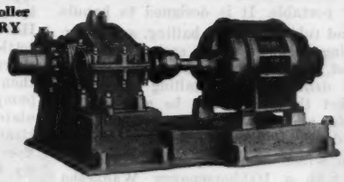
# EMSCO

## ALL STEEL ROTARY EQUIPMENT

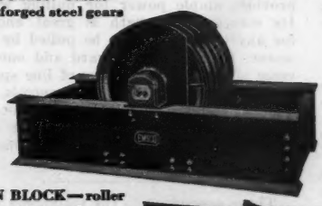
(ALL ROLLER BEARING)

***The Latest Development . . . in Modern Rotary Equipment***

Type C—27½" Roller Bearing ROTARY



200 HP G REDUCTION GEAR—roller bearing...forged steel gears

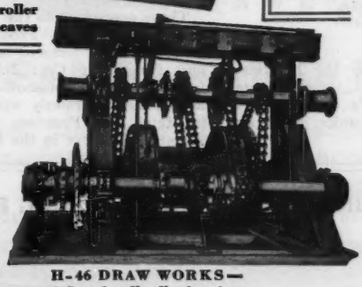


EA CROWN BLOCK—roller bearing...manganese sheaves

B-6 Oil Bath Swivel



TRAVELING BLOCK—roller bearing... manganese sheaves



H-46 DRAW WORKS—4-Speed...all roller bearing

*"If Continental Sells It....There Is No Better"*

**THE CONTINENTAL SUPPLY COMPANY**

*General Offices:* ST. LOUIS; *Export Offices:* 74 Trinity Court, NEW YORK

*London Offices:* 316-17 Dashwood House, Old Broad St., E. C. 2.

**THE CONTINENTAL SUPPLY COMPANY, LTD.**

224 Traders Building, Calgary, Alberta, Canada

J559

# CONTINENTAL

# EQUIPMENT AND SUPPLIES

## HEATING ELEMENTS OF EVAPORATOR BUILT IN

The outstanding feature of the new Tulsa type evaporator, the Tulsa Boiler & Machinery Co.'s latest addition to its line of gasoline plant equipment, is the

built-in heating elements, which do away with heating on the trays for evaporation. The bottom tray, which determines the efficiency of an evaporator, is hottest, thereby increasing the efficiency of the heating elements due to greater M.T.D. It eliminates the necessity of insulating preheaters and the use of a vent tank before preheaters, thereby saving radiation losses.

In addition the oil passes to the exchangers at a higher temperature, thereby increasing evaporation in the exchangers themselves, which in turn increases their efficiency owing to this evaporation establishing a greater M.T.D.

The result, according to the manufacturers, is a saving of not less than 20 per cent in open steam and of 10 per cent through reduced radiation losses, a total of 30 per cent saving in steam consumption when operated at the same pressure, besides an increase of more than 10 per cent in heat exchanger efficiency. The equipment can be operated at a higher pressure, thereby increasing the efficiency of the condensing coils resulting in a large saving on this equipment and also on the recompressor load.

### MADE TRACKSON DISTRIBUTOR

The Steel Products Corp., El Paso, Tex., has been appointed distributor of the Trackson lines of tractor equipment for the McCormick-Deering industrial tractor. The company's district covers most of New Mexico and Arizona, and the states of Chihuahua and Sonora, Mexico. The company will carry a complete stock of Trackson full-crawlers, loaders, shovels, cranes, and bulldozers.

### DISCUSS CLEANING PROBLEMS

The 110 district managers and representatives comprising the field organization of Oakite Products, Inc., met in the general offices in New York, November 20-23, for their annual sales conference. Every section of the United States and Canada is represented by this organization, and the daily discussions covered many kinds of cleaning work. Among the papers read were those referring to paint removing, cleaning oil tank cars, etc. Exchange of ideas was supplemented by special laboratory demonstrations made by the office technical and laboratory staff, and by men who have made certain fields their special study.

### TRADE LITERATURE RECEIVED

The automatic gas-fired Hot-Kold heating and ventilating system, "for warmer winters and cooler summers," is the subject of a 32-page booklet being sent out by the General Iron Works Co., Cincinnati, Ohio. Pictures of homes and industrial plants in which the system is installed are given.

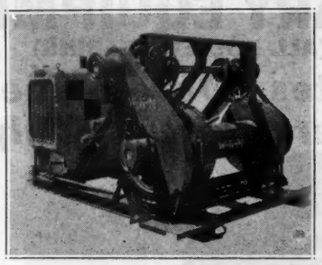
The Joseph Reid Gas Engine Co., Oil City, Pa., has issued five new catalogs as follows: No. 46, type B, 45-horsepower, 16 by 21 inch, four-cycle gas engines; No. 47, Fulton type lock boxes; No. 48A, No. 55, heavy-duty reverse rigs; No. 49, pressure oiling system for type B enclosed two-cycle gas engines; No. 50, type B, four-cycle, 30, 35 and 40-horsepower gas engines.

The first number of the Columbian Marketer, to be published monthly by the Columbian Steel Tank Co., Kansas City, Mo., as a friendly visitor to the oil marketing trade, contains articles of practical value, leading off with "Truck Driver My Best Salesman," by W. E. Collins, veteran oil marketer.

Bulletin 209, issued by the American Well Works, Aurora, Ill., describes and illustrates the company's complete new line of oil well pumping units, which are made in six sizes.

## WINCH DESIGNED FOR WIDE RANGE OF USES

The new 100-horsepower Master winch manufactured by the W-K-M Co., Inc., of Houston, Tex., is patterned after a rotary drawworks, entirely self-con-



tained and when mounted on a trailer is easily portable. It is designed to handle rod and tubing pulling, bailing, swabbing, plugging back, resetting casing, and any kind of cleaning out work on the deepest wells drilled. By installing a rotary sprocket the winch can be adapted for drilling, and it will handle rotary work to a depth of 2,500 to 3,000 feet.

The winch comes equipped, as specified, with a 100-horsepower Waukesha or 100-horsepower Hercules motor, which provides ample power for pulling work. Its structural strength is great enough for any load which can be pulled by the motor. Four speeds forward and one reverse afford a liberal range of line speeds and pulling capacities. All controls, including clutches, hand throttle, foot accelerator, reverse, and brakes, are centralized and easily accessible to the operator.

Three accessions to the Oklahoma City store of the Lucey Products Corp. are R. L. Bumpers, formerly with the Bridgeport Machinery Co.; L. E. Ferguson, formerly in the Tulsa office, and Gilbert Montgomery, formerly with the company in Maud. Mr. Ferguson and Mr. Montgomery will serve in the field.

## FUEL OIL IS CLEANSED BY SHARPLES PURIFIER

The Sharples Super-Centrifugal fuel oil purifier and the Sharples process for the recovery of fuel oil from sludge-fuel oil mixtures have been developed after thorough investigation and study of problems met in the fuel oil field.

The Sharples fuel oil purifier and reclaimer, according to the manufacturers, the Sharples Separator Co., West Chester, Pa., will purify equally well fuel oils ranging from the best commercially obtainable, to the worst, including sludge-fuel oil accumulations encountered in industrial work containing in some cases as high as 40 per cent of sludge and other impurities.

The Sharples Special Centrifugal is an integral part of the Sharples process for the recovery of fuel oil from sludge-fuel oil accumulations.

The oil is heated in the settling or dirty fuel oil tank preferably with a coil type heater, and in some cases, if desired, by means of an electrical heating unit. Heavy sludge, water and other impurities settle to the bottom of the tank in a short time after heating, and fuel oil, then containing only light sludge, is pumped from just under the surface (regulated by means of a special float and strainer arrangement) to the Sharples Special Centrifugal at the proper capacity for complete removal by centrifugal treatment of the remainder of the objectionable sludge and other impurities. From the centrifugal the good fuel oil is pumped to the proper clean storage tank in a normal condition ready for use.

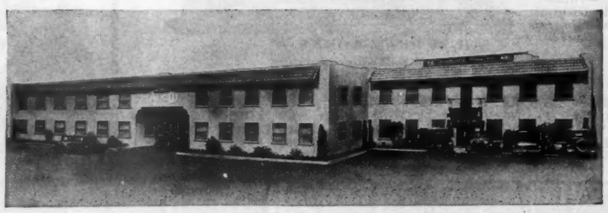
## SAILS FOR MARACAIBO TO ESTABLISH AGENCY

R. R. Weidman, representing Black, Sivalls & Bryson of Bartlesville, Okla., in the sale of bolted steel tanks; the American Tank Co. of Oklahoma City,

**R. R. Weidman**

Okla., in the sale of American separators, and Lee C. Moore & Co. of Pittsburgh, Pa., in the sale of derricks, sailed November 20 for Puerto, Colombia. After a few weeks in Puerto, Mr. Weidman will go to Maracaibo, Venezuela, where he plans to establish headquarters, maintaining close touch with operating conditions in South American oil fields.

## ALCO COMPANY INCREASES MANUFACTURING FACILITIES



*Enlarged plant of the Alco Oil Tool Co., Compton, Calif.*

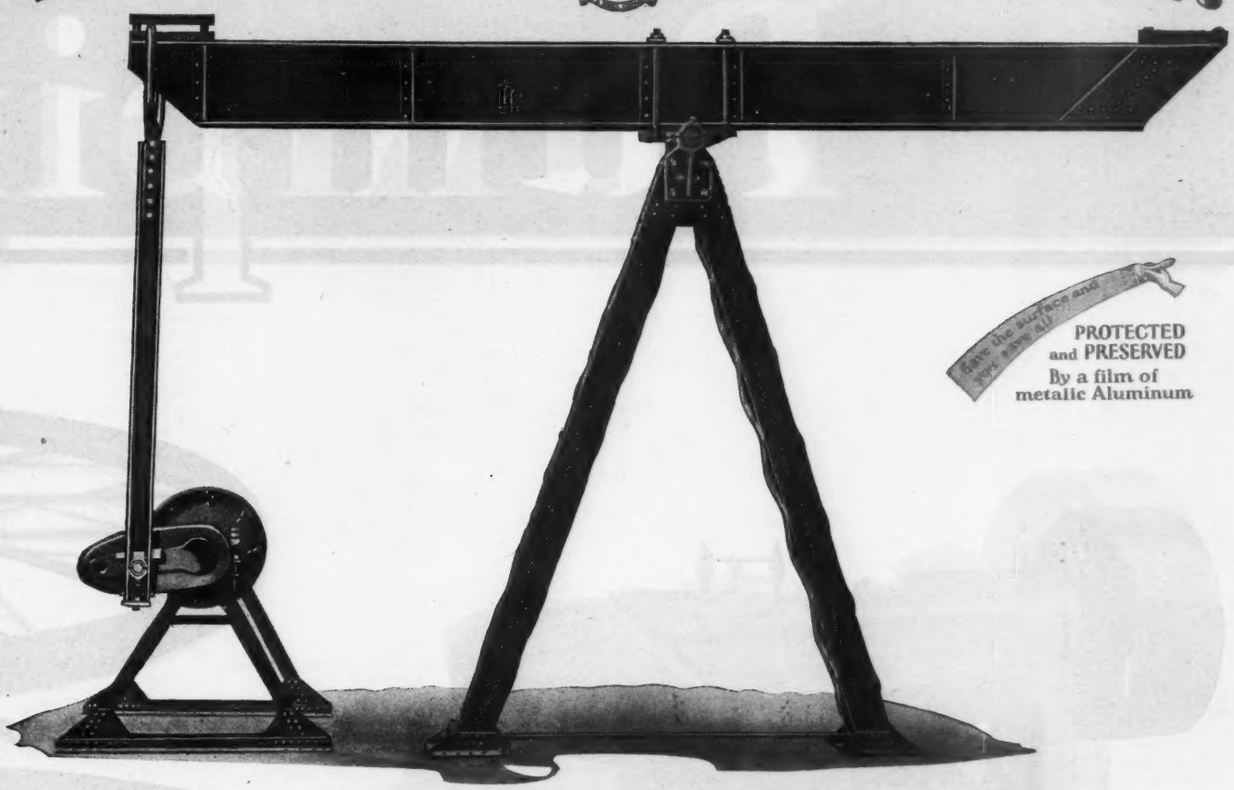
The Alco Oil Tool Co., Inc., is now occupying its enlarged plant in Compton, Calif. Alco now has a total of over 30,000 square feet of floor space in use. Formerly the lathes and other machinery occupied the larger part of the plant, crowding the welding shop and other departments into odd corners and other small buildings. Now the lathes, planers, etc., have one wing entirely to themselves and the new wing is given over to storage of material and finished tools, heat treating and welding shop, and shipping department. An improved system for handling and conveying the heavy tools and equipment from one part of the plant to another has been installed.

In addition to the increased shop facilities, larger and more convenient quarters have been provided for the executive heads and the engineering, accounting, and sales departments. A show room is being arranged where all Alco tools and equipment will be exhibited for convenient inspection by visitors.

Hubert Allen, president of the company, said that the growth of the business had reached a point where greater facilities were imperative for the manufacture of Alco bits, coring equipment, forged steel fittings and underreamers. Other new and improved products are under consideration, he said.

# PARKERSBURG

## Has served the oil fields of the world for 32 years




## REDUCE WELL EXPENSE WITH STEEL

Parkersburg "A" Frame Type Steel Sampson Posts and Jack Posts, set on concrete foundations, provide a permanent installation.

Ultimate saving in cost results from elimination of sills and salvage of all material, except foundation and foundation bolts, when moved to new location. Fire hazard is reduced.

Sampson Post is furnished in two sections to facilitate handling and shipping. The two halves are interchangeable and easily assembled.

Jack Posts are supplied in two heights—5′ and 5′6″; for any size Band Wheel.

Parkersburg Steel Walking Beams are furnished in I-Beam and Box Girder Type construction, and in standard lengths.

For details and specifications write for Bulletin "E".

**THE PARKERSBURG RIG & REEL COMPANY**

**EXECUTIVE OFFICES & MAIN PLANT**

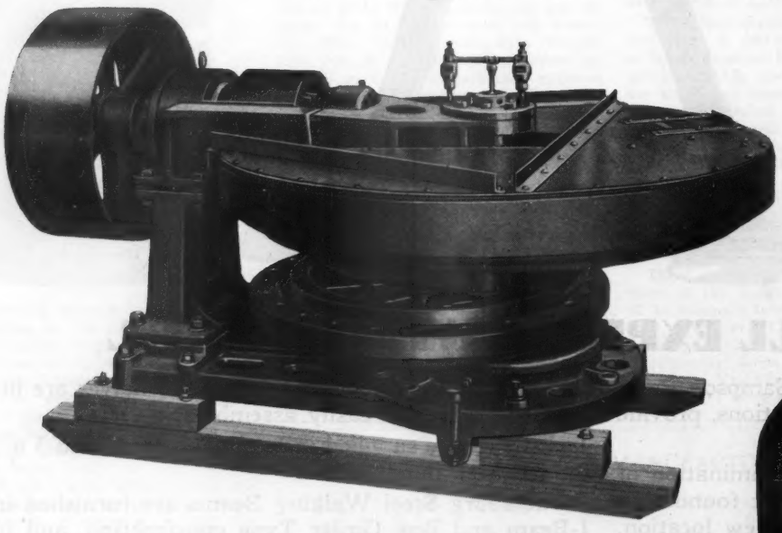
**PARKERSBURG, WEST, VA.**

**PARKERSBURG PRODUCTS**

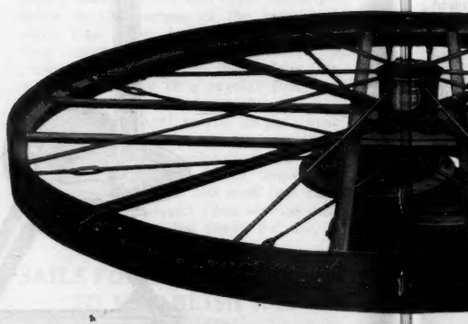
| | | | |
|---|---|---|---|
| Steel Derricks and Steel Crown Blocks | ■ | Rig Irons (A.P.I. Standard) | ■ |
| Chain Driven Sand Reels and Bailing Reels | ■ | Portable Drilling Machines (Wood and All-Steel) | ■ |
| Steel Wheels | ■ | Bolted Steel Tanks | ■ |
| All-Steel Standard Rigs | ■ | Miscellaneous Drilling Equipment | ■ |

Check the equipment in which you are interested, tear out and return this coupon, with your name and address, to us, and we will send you complete information on the items checked.

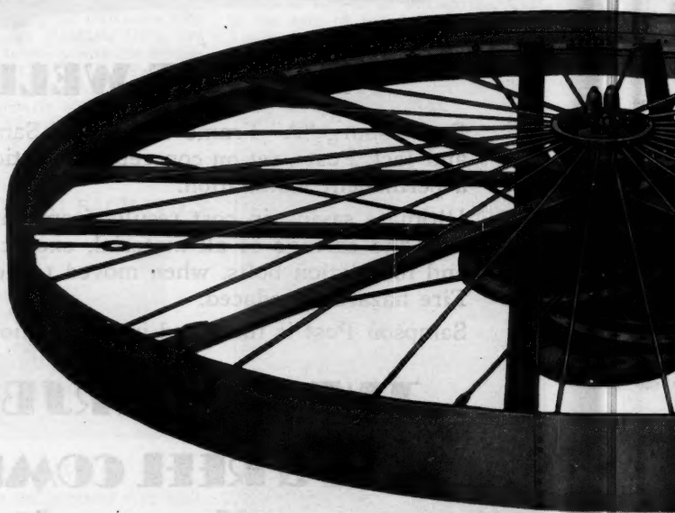
# Natio Pumping



7 GEARED POWER



12-C BAND WHEE



15-C BAND WHEEL

THE
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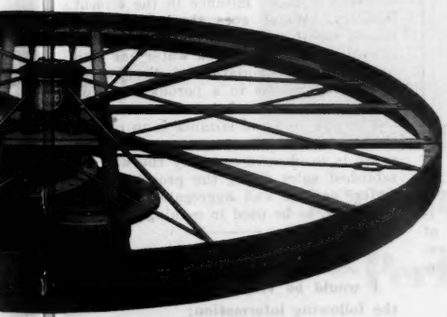
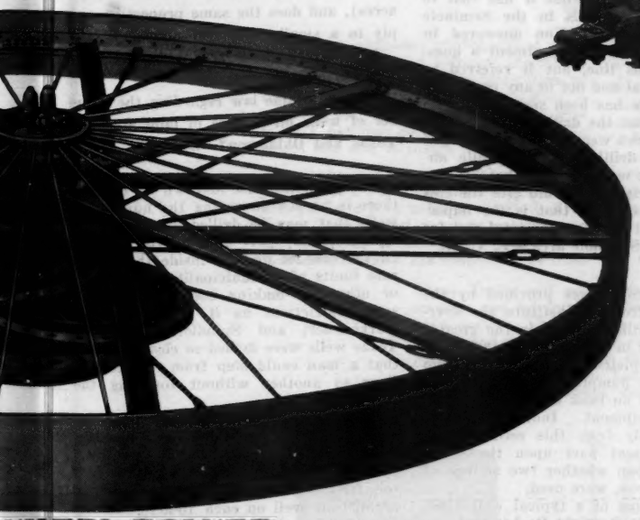


WHEEL POWER



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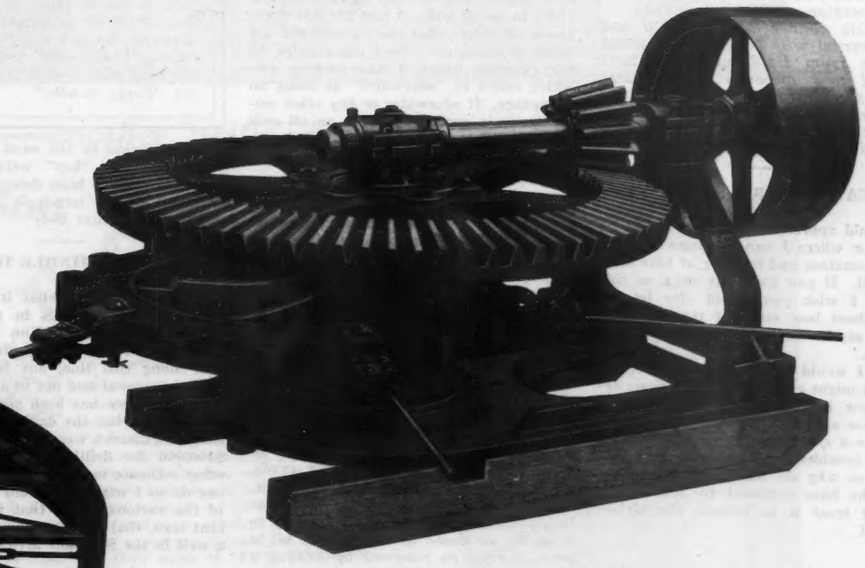


No. 6 GEARED POWER

THE
AL SUPPLY
IPANIES

# Field Problems and Their Solution

**EDITED BY THOMAS F. SMILEY**

*In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.*

*Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.*

*In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.*

*In case an immediate answer is important, one will be given by mail if the writer requests it.*

### TREATING BASIC SEDIMENT

**I would appreciate it if you would let me know where I can get some data on the reclamation and treating of base sediment oil. If you have any data on this subject I wish you would also let me know about how much of this oil is in storage at the various tank farms in this country.**

**Also I would appreciate any information you might give me on the various devices now in use in reclaiming the oil from base sediment. Do all of these devices use a steam-heating process?**

**Is it considered a profitable business, and if so why do the major companies allow the base sediment to accumulate and not treat it to reclaim the oil?—R. P. M.**

Treatment of basic sediment, commonly designated in the oil field as "b.s.," to recover the oil in it has not been carried on yet in any such way as to bring about a standardized method. Most of the work along this line, aside from that done by the owners of oil production themselves, has been by one or two individuals here and there who constructed somewhat crude plants of their own design for treating this oil field refuse in the hope of building up a profitable business. The owners of these plants would perform the work involved themselves, so that there was little overhead. So far as available information goes, however, none of these enterprises has proved especially profitable. Various oil companies also have installed equipment to reclaim clean oil from b.s.

The methods generally employed include first the application of heat in the form of steam. Sometimes certain acids are used. In any case the purpose is to liquefy the b.s. It then is subjected to a settling process, which usually involves running it through a series of baffles. Literature on this subject is confined for the most part to descriptions in various periodicals of some one of these specially made reclamation plants.

Your question concerning the amount of "this oil" in storage is assumed to refer to petroleum that has been stored in the large tanks on tank farms. There is approximately 600,000,000 bbls. of such oil in storage in the United States. It should be pointed out, however that there is little or no b.s. in these big storage tanks on tank farms. The b.s., which consists of sand, silt, waxy material, dirt and other foreign substances formed with oil into a dark, jelly-like mass, settles to the bottom of the stock tanks on the lease. Only the clean pipe line oil above it is run to storage on the tank farms.

Replying to your question as to why the major companies allow b.s. to accumulate instead of treating it for reclamation, the answer is that the major companies do not allow b.s. to accumulate in large amount in any one tank and that many of them do treat it for reclamation. The tanks on the lease are so constructed that the b.s. can be removed at intervals either for treatment or to be burned in "sump pits."

### WATER MAY BE BENEFICIAL

**It always has been my understanding that water was always an undesirable thing in an oil well, in fact the one thing above all others that the oil man did not want to encounter. So I am puzzled by the clipping which I am sending you which refers to "edgewater" as being an advantage. If edgewater or any other water serves a good purpose in an oil well I would like to know how and I wish you would explain.—S. S. T.**

You must have heard of the water-drive system that is playing such a prominent part in the reclaiming of oil left in sand bodies in the Bradford fields of Pennsylvania and elsewhere. In this instance it is evident that water has advantages, for it is actually pumped into these oil bearing sands to help drive the oil out of them so that it can be recovered.

It is probably safe to say that in nearly every oil field water is associated with the oil, and what is termed "edgewater" is that body of water that lies adjacent to the actual oil body in the sand. It forms an area around the structure or down the dip of the oil-bearing sands, and helps to expel the oil from the sands.

Subterranean waters are under more or less pressure and this force serves to push the oil ahead of it when the oil is released from its reservoir by drilling a hole into the sands and relieving the pressures that have accumulated there through ages.

As this pressure in the sand body is released, the water tends to crowd into the space made vacant in the reservoir by the removal of the oil and gas to the surface, and if this movement of the water is controlled by maintaining a favorable relation of pressures between sand and surface, the water behind the oil is actually beneficial and will push the oil out into the hole and assist in lifting it to the surface.

But this water force should not be allowed to get beyond control of the operator or it will tend to crowd past the oil into the hole and in this way get in the way of the oil and actually cut off its means of escape. Under such conditions water is detrimental to the operation of the oil well.

Bottom water is water that frequently occupies that space in the sand reservoir below the oil and gas body. If the well is drilled too deep it will penetrate into this water body and tend to rush into the hole and form into a cone-shaped area around the well which will effectively shut off the escape of the oil to the hole and surface.

In some cases it is possible to plug off bottom water. Edgewater cannot be shut off from the hole, but it is possible by proper manipulation of well production so to regulate the flow of oil and gas from the sand that the water will not move forward faster than pore spaces in the sand are provided for it to occupy. Under such a condition the formation water is really beneficial, for it has the effect of washing the sands and more oil will be recovered than if it were not present. Oil will float on water under all normal conditions, hence the washing effect.

The artificial water-drive employed in the Bradford area is in effect the introduction of edgewater into the reservoir and by controlling it forcing out such oil as remains in the sand. This oil is recovered from "key" wells located at points that have been determined by experiment as the terminals of the movement of this water body.

### WHY WAS IT CALLED THAT?

#### FORGY HANDLE

This is the term still commonly used to designate the handle for the Barrett lever jacks. It had its origin in the fact that William Forgy, of Washington, Pa., was the first salesman to introduce the jack in the oil fields of the East. Because of his personality and enthusiasm the jack was first known as the "Forgy jack" and the handle used with it still is known as the "Forgy handle."

### COST OF SEMINOLE DRILLING

**Can you tell me what it has cost to drill one of the wells in the Seminole Field of Oklahoma? You answered in your Field Problems department a question along this line, but it referred to wells in general and not in any particular district. There has been some discussion here as to what the drilling costs in the Seminole district were. One estimate was $100,000 for drilling a well, while another estimate was just half that. If you can do so I wish you would give the cost of the various items, that is the important ones, that make up the total cost for a well in the Seminole area.—L. U. N.**

According to figures provided by the American Petroleum Institute the average cost of drilling a well in the greater Seminole area in 1928 was $60,000. This is for a completed well only, with no equipment for pumping or producing the well and with no tank batteries or other leasehold equipment. Individual wells vary materially from this estimate, depending in great part upon the depth drilled and upon whether two strings of pipe, or only one, were used.

The total cost of a typical well 4,355 feet deep in the Searight Pool is given as $70,038, made up as follows: Derrick, $7,944; labor, teaming and freight, $2,565; casing, $17,689; other equipment, $210; miscellaneous, $619; drilling cost, $41,011. It may be pointed out that the cost of the derrick in this itemization seems high and it should not be overlooked that some of the equipment can be salvaged and put to use in other wells.

The cost of drilling a typical well 4,198 feet deep in the South Little River Pool is given as $56,829, with the items making up this total agreeing relatively with those for the Searight well.

### AVOIDING CONCRETE TROUBLE

**It often happens when I am using concrete that there will show at the top a watery, sometimes sort of frothy covering. This disappears after awhile, but I have noticed afterwards that the surface of the concrete seems to crumble more easy than it should. Can you tell me what causes this and if there is any way of avoiding it?—S. N. T.**

The condition you describe probably occurs where the concrete work is deeper than usual. In deep concrete too much water, along with spading, will cause a pulpy, gelatinous scum composed of fine materials, dirt and the excess water to rise to the top. This hardens in a soapy layer, which, as you have discovered, crumbles easily. There is virtually no strength in the layer and it soon disintegrates, leaving a weak place in the concrete structure.

This dirty scum, which sometimes appears on the surface of freshly placed concrete is called laitance in the cement industry. Water goes through laitance planes readily. A thick layer of laitance is evidence that too much water has been used. This accumulation of dirty water at the top results in a porous condition of the concrete just below it.

The way to avoid laitance is to remove the cause, and the way to remove the cause is to observe carefully the well established rules fixing the proportions of water, cement and aggregates, or inert materials, to be used in making concrete.

### HOW MANY WELLS

**I would be very grateful to you for the following information:**

**How many wells are permitted to be drilled on a quarter-section lease (160 acres), and does the same proportion apply to a smaller piece of acreage?**

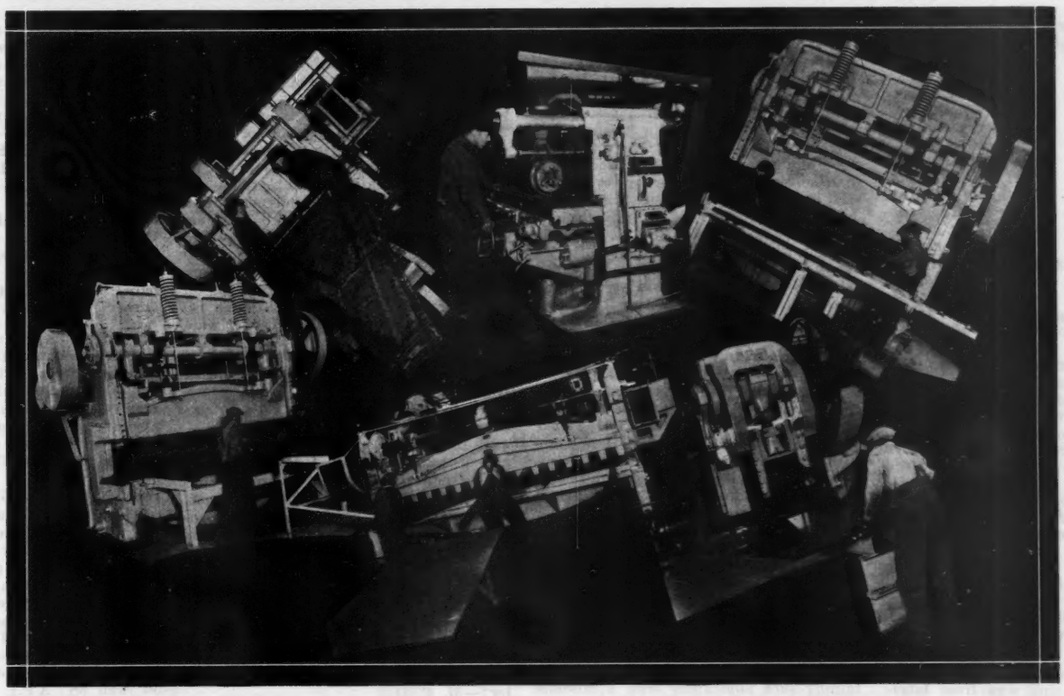
**How are the wells arranged as regards location on the lease?**

**Does the same law regarding the number of wells on a piece of land apply in Texas and Oklahoma?—B. J. O.**

Except in the case of town lot drilling there is no law governing the number of wells that may be drilled on a quarter-section or any part of a quarter-section. In the case of drilling inside the corporate limits of a municipality the council or other law-making body may impose such restrictions as it wishes. In the Burkburnett and Spindletop areas of Texas wells were drilled so close together that a man could step from one derrick floor to another without touching the ground.

No hard and fast rule determines the location of wells. In the orderly development of a section, however, it is a practice in Oklahoma and Kansas to drill the first wells at such points as will permit one well on each 10-acre subdivision if it should prove desirable later to put down the additional wells. In the conservation movement which is receiving the serious thought of leaders in the petroleum industry the matter of well spacing has an important place.

You will find of interest in this connection "Theory of Proper Spacing of Wells," by Dr. W. P. Haseman, and "Suggested Unit Operation Procedure," by S. C. Corbett, both in the October 3, 1929, number of The Oil and Gas Journal, and "Mechanical Phases of Unit Control," by L. G. E. Bignell, in the issue of November 28, 1929.



*Accuracy—another "trifle" in the*

*"Trifles Make Perfection, but Perfection Is No Trifle"*

**B.S.&B. Perfection Vapor Pressure TANKS**

Above is a composite photograph of some of the powerful and intricate machinery used—and needed—in the fabrication of these Tanks. A large modern factory is required for volume production, so that these Tanks may be offered at reasonable prices and also to insure accuracy.

The photograph on the right is an actual close-up of a workman in our factory. His sole job is to bore holes in the B. S. & B. Safety Valves, but he does not have to use his skill, or hardly his mind, other than mechanically. He simply works from a pattern, which insures the trueness and accuracy of the part for the valve.

We maintain an Engineering Department that produces the patterns, and supervises every operation in the design and construction of these Tanks. Thus each part is made as accurate as man and machine can make it, and experiments are constantly being made, both mechanically and chemically, to be on an alert lookout for new and more efficient materials or methods so we may keep these Tanks ever up to their name of "PERFECTION".

These Tanks will protect your crude while in storage, and deliver it to the pipe line at wellhead gravity. Through our means of manufacturing, and distribution by our own Fifty Field Stations, we are able to give immediate and careful service on each Tank sold. There can be no complaints about either our Tanks or our service.

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**Black Sivalls & Bryson** INC.

BARTLESVILLE - OKLAHOMA

# Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

*This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.*

*Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.*

*Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.*

*All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.*

*Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.*

## SOLVENTS FOR EXTRACTING WAX

**What substances are considered to be suitable for extracting wax from lubricating stock? What is wanted is a liquid that will dissolve the oil alone or the wax only.—T. R. F.**

There was an article on the separation of wax from oil by the selective solvent action of several organic liquids, by J. W. Poole, in The Oil and Gas Journal, September 26, 1929, Solvent Extraction of Paraffin Wax. This article is a discussion of the subject and directs attention to the possibilities for perfecting a commercial process of this sort. At the end of the article a number of reports and patents are abstracted and several substances are mentioned. These abstracts follow:

Sullivan, McGill and French, Solubility of Paraffin Wax in Oil, Ind. Eng. Chem. 19, p. 1,042, in investigating the solubility of paraffin wax in Mid-Continent oils, came to three conclusions, all of which are important:

1. The solubility of wax in oil increases as the melting point of the wax decreases.
2. The solubility of paraffin wax in oil decreases with increasing viscosity of the solvent.
3. Difference of solubility due to difference in melting point of wax decreases with decreasing temperature.

Weber and Dunlap, Solubility of Paraffin Wax in Pure Hydrocarbons, Ind. Eng. Chem. 20, pp. 383-4, in their investigations of the solubility of paraffin wax in normal pentane, normal hexane, normal heptane, normal octane and isodecane quite conclusively substantiated the results of Sullivan, McGill and French. Their work shows a most decided decrease in solubility with increase in molecular weight, indicating more or less that equal mols of solvent dissolve equal quantities of wax. Their work suggests the possibility of separation using a close cut kerosene or close cut heavy naphtha as a selective solvent.

In connection with above work, United States Patent No. 1,562,425, Removing Wax from Hydrocarbon Oils, issued to A. Greenspar, is of interest. This patent states that "Kerosene is added to effect crystallization at 27-32 degrees Fahrenheit. The oil is then separated from wax crystals and amorphous wax and kerosene distilled off until residue in still is a high grade cylinder stock.

Leaving the petroleum solvents, we find also some matter dealing with the use of other organic solvents. We find that Henderson and Ferris, Determination of Paraffin Wax in Crude Wax, Ind. Eng. Chem. 19, p. 2,624, found acetone and nitrobenzol to have good selective solvent qualities for oil over wax. Making use of this feature, they developed a method for the determination of paraffin wax in crude wax; a modification of which, considerably simplified in manipulation, the author made most satisfactory use of on Mexican products.

In a summary of investigations using isopropyl and secondary butyl alcohols, and acetone and mixes of above, Smith, Dewaxing of Paraffin Base Crude Oils, in The Oil and Gas Journal, Vol. 26, No. 17, p. 146, reports that the constant boiling mix of isopropyl alcohol and water has no advantages over acetone but that the alcohol, dehydrated by solid NaOH and anhydrous $CuSO_4$, was an excellent solvent. Secondary butyl alcohol was claimed to give good results, as also were certain mixes with acetone. Temperatures other than those close to 32 degrees Fahrenheit were not investigated.

Finally, there are three patents, all of which have a definite bearing on the problem. First, "The Separation of Paraffin Wax from Oil," Canada 269, 444, R. E. Wilson, April 5, 1927, states that paraffin wax is separated from mineral oils by treating a thin composition containing such substances with a miscible liquid comprising isopropyl alcohol, which precipitates the bulk of the wax.

British Patent 276,658 states that trichloroethylene or other liquid making oil heavier than wax is added before centrifugal separation, and last of all United States Patent 1,669,151, May 8, 1927, states that steam refined stock is diluted with a solvent (e.g., methyl ethyl ketone) in which petrolatum is less soluble than in naphtha and the then diluted stock is chilled to separate petrolatum.

The third patent, United States 1,706,-120, issued also to R. E. Wilson, was issued in March, 1929, and states: "In order to remove petrolatum from oil it is mixed with benzol and acetone, cooled and the waxy material separated."

## ACIDS FORMED IN CRACKING STILLS

**There is a small amount of water which comes over in the distillate from our pressure stills which tests acid and has a sour odor like vinegar. Have you any information showing what kind of acid this may be?—H. S. T.**

We have much evidence that hydrochloric acid and the acids of sulphur are frequently formed when petroleum is distilled. These have their origin in the chlorides and sulphur compounds commonly occurring in crude oil. When traces of water are present in the charging stock, or when steam is admitted to the still, there is a favorable condition for the formation of these acids; however, when water in any form is absent it is not so easy to explain the presence of an acid distillate.

Vinegar, as you know, is a dilute solution of acetic acid and the same condition which you have noted was reported by Hall and Taveau at the American Petroleum Institute meeting, Chicago, December 3, 1928. See Bulletin Ninth Annual Meeting, Section 2, page 122, The Formation of Acetic Acid in Heat and Pressure Cracking, also The Oil and Gas Journal, December 6, 1928, page 110. These authors noted that water extracts made by pressure cracking at times possessed an acetic acid odor and that no matter how dry the pressure still charging stock some water invariably came over with the distillate. In the study of a number of gas oils it was assumed that if water and acetic acid or other fatty acids were formed in the cracking reaction, and the water was not originally present in the charge in sufficient quantity, that the oxygen must be supplied by the charging stock itself and therefore the water must come from the decomposition of the acids themselves. Small scale experiments demonstrated that acetic acid could be produced under cracking conditions.

It was observed that the virgin gas oil produced more water and acid than recycle stocks. Daily samples of water were collected over a period of 45 days and the organic acids determined. The percentages of volatile acids, as acetic, varied from 0.85 per cent to 1.98 per cent for virgin oil with an average of 1.45 per cent. The recycle stocks, for 10 days, gave 0.45 to 1.90 per cent with an average of 1.20 per cent. A sample of the acids from a composite of the water contained hydrochloric acid 3.25 per cent, formic acid 0.054, acetic acid 27.57, propionic acid 20.13, butryic acid 8.47 per cent.

## LUBRICATING OILS NAPHTHENE AND PARAFFIN BASE

**What are naphthene base lubricating oils and how do they compare with paraffin oils as to carbon deposits in a motor?—M. C. D.**

The naphthenes constitute a group of hydrocarbons which are united in a ring or cyclic form. They contain twice as many hydrogen atoms as carbon; decanaphthene has the formula $C_{10}H_{20}$ and boils at 302° F. The naphthenic lubricating oils are obtained chiefly from the heavy crude oils, especially those commonly known as asphaltic crudes. Some of the Gulf Coast and Louisiana oils are noted for their high percentage of naphthenes.

A study of carbon deposits from several different lubricating oils has been made by Livingston and Gruse which has been reported in Industrial and Engineering Chemistry, Volume 21, page 904, 1929. The conclusions outlined in the following are from this article.

Eighteen motor coaches were divided into three groups and a different oil used for each group. The oils used included a paraffin base oil, the carbon residue of which was considered to be high; a second paraffin base oil with an exceptionally low carbon residue; and a naphthenic base oil. All three oils were of about the same viscosity at 210° F. The properties of these oils are given in the table.

| Test— | High carbon paraffin oil | Low carbon paraffin oil | Naphthenic oil |
|---|---|---|---|
| Flash ..... | 480° F. | 470° F. | 500° F. |
| Fire ..... | 520° | 535° | 565° |
| Visc. @ 100°F. | 1,310 | 1,360 | 2,760 |
| Visc. @ 210°.. | 105 | 104 | 103 |
| Pour ..... | 25 | 10 | 20 |
| Color N.P.A... | 4.5 | 1.5 | 8 |
| Carbon residue | 1.0 | 0.15 | 0.70 |

Among the data reported are: The number of engine ports cleaned in 51,000 to 60,000 miles were 164 for the high carbon paraffinic oil; 151 for the low carbon; and 38 for the naphthenic. The total carbon area per coach per 10,000 miles was high carbon 30.64 square inches, low carbon 29.46; naphthenic 11.57 square inches.

The general conclusions are mentioned. The carbon residue test is a fairly reliable index of carbon deposition in a poppet-valve engine. A paraffinic oil of low carbon residue value must be very highly refined. A naphthenic oil has an inherent tendency to low carbon deposit. In sleeve engines a paraffinic low carbon oil was only slightly better as to carbon deposits than one of normal carbon residue value, and both were strikingly inferior to a naphthenic oil.

## HEATING VALUE OF PETROLEUM PRODUCTS

**We are desirous to know the gravity and the heating value of the following: Distillate, gas oil, the different grades of fuel oils, kerosene, and gasoline. Which do you recommend to be used in a furnace equipped with regular fuel oil burners?—D. E. K.**

Distillate is the name applied to several petroleum fractions and therefore is of uncertain composition. Distillates varying from approximately 20 gravity to 45 gravity are used in various oil burning appliances. The domestic light distillate varies between 36° and 42° A.P.I. gravity, and the controlling property is usually the flashpoint which may vary between 110° and 165° F.

The gas oils usually fall within 30 and 36 gravity. The products commonly called fuel oil may be quite heavy, as low as 10° A.P.I. gravity, or comparatively light, as high as 30° A.P.I. gravity. The gravity of gasoline may be around 50 when made from some crudes such as are found in California, but throughout the greater part of the United States the gravity of gasoline is between 56° and 68° A.P.I.

There is but little difference in the heating value of the ordinary fuel oils, including gas oil and the burner distillates, the heating value ranging commonly between 17,000 and 20,000 B.t.u. per pound. Ordinarily the pourpoint, flashpoint and viscosity are the important properties specified.

It appears that there are over 2,000 different oil burners on the market, and many of these are designed for burning a product of comparatively narrow specifications. Some of them require to be sprayed into the furnace by means of steam or air, others require that the oil be delivered through the burner by pressure, and a few burn the oil by means of a gravity system.

Local conditions as to building, type of furnace, freight rates, and the petroleum products available should be considered when selecting a burner. Most of the burner manufacturers have service departments, and these are competent to give valuable suggestions on the subject.

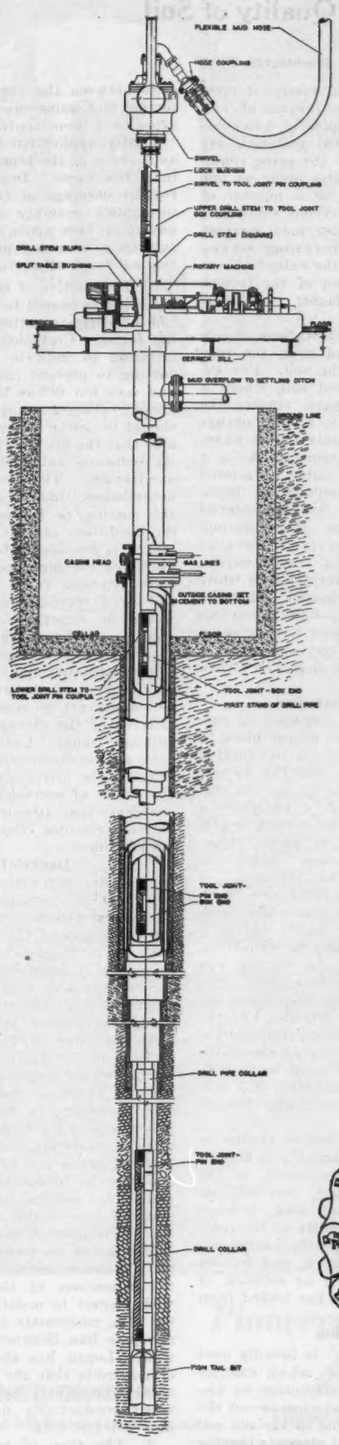
## BRIGHT STOCK TREATING AND FILTERING

**Concerning the treatment of bright stock, your page November 21, when using temperatures around 300° and higher in the contact system of filtering, is the stock blended with naphtha? Does the earth completely neutralize the oil of all the acid? We have been blending our stock with 60 per cent naphtha which has an initial of 180° and an end of 300°.—C. H. K.**

There are several modifications possible for the treatment of oils by the contact method and the filtering following the acid and clay stages must not be confused with the removal of wax. The wax may be extracted by either the press method or the centrifugal process, and it is customary to dilute heavy oils and chill before attempting to separate the wax by either method.

More satisfactory results are obtained when treating with acid and contacting with the clay if some heat is applied. Some refiners treat with the required

(Continued on Page 116)

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# Field Inspection of Protective Coatings

## Relation Between Ability of Coatings to Prevent Corrosion, Type and Age of Coating, and Corrosive Quality of Soil

By Gordon N. Scott
American Petroleum Institute Resident Associate at Bureau of Standards, Washington, D.C.*

This report summarizes the results of 449 field inspections of protective coatings applied to operating lines of 20 separate oil and gas companies. The purpose of the inspections, which were made between February 18 and September 20, 1929, was to determine the condition of coatings now in use on pipe lines.

For the most part, ordinary field applications were inspected. However, there are included a number of inspections of test treatments which were applied to short or long stretches of operating lines for the purpose of comparing the behavior of various kinds or classes of coatings.

Most of the inspections were made in California, Texas and Oklahoma, although a large number were recorded in Louisiana, Kansas, Missouri, Illinois, and Indiana. The distribution of the coating inspections by states is given in Table 1.

TABLE 1—DISTRIBUTION OF INSPECTIONS BY STATES

| State | No. of Inspections |
|---|---|
| California | 205 |
| Illinois | 40 |
| Indiana | 5 |
| Kansas | 12 |
| Louisiana | 23 |
| Missouri | 12 |
| Oklahoma | 62 |
| Texas | 90 |
| Total | 449 |

### Method

Ordinarily a 4-foot to 8-foot stretch of coated pipe was uncovered and critically examined. However, where opportunities were afforded, a single inspection records a summarized condition of the coating on 20 or more feet of pipe. In a few cases, where topographical or soil conditions warranted them, inspections of the same application were made in a number of places within 100 feet or less, but for the most part the locations of the inspections of a given application are separated by thousands of feet or by miles.

A fairly complete record of each inspection has been kept. Record forms allowing adequate space for the insertion of remarks at the time of inspection, were consistently used to record the data. These record forms were designed to give the following information: date of inspection, the company whose lines were inspected, the names of the people present at the inspection, the state, the county, the pump stations between which the inspections were made, the name or number of the line and accurate location of the point of inspection on the line, the pipe diameter, the make of pipe, the depth of coverage, the amount of coated pipe exposed, the type and amount of vegetation growing immediately above the pipe, the date the treatment was applied, a complete description of the treatment in so far as the data were available, together with notations as to how the pipe was cleaned for treatment, the extent of cleaning, etc., the topography, general vegetation, surface and subsurface drainage, water table, if any, a description of the soil, condition of the coating and pipe at the top, sides, bottom, and supplemental notes wherein were added additional facts for which space was not afforded under the titles listed above.

The value of much of this information is doubtful. However, for purposes of record, it was deemed advisable to accumulate all available information, rather than to have a deficiency of data at the termination of the work.

In a large number of cases, soil samples were taken, both for purposes of reference and for studying the properties of the soils which show stress effects, and relating these properties to field observations. A large number of photographs were taken and affixed to the records.

*Before tenth annual meeting, American Petroleum Institute, Chicago, Ill. December 5, 1929.

### Essential Observations

For the purpose of this report, four outstanding sets of data are of dominating importance:

1. Corrosion of the pipe.
2. Type of coating.
3. Age of coating.
4. Corrosive quality of the soil.

These four sets of data by no means exhaust the numerous factors which must have an effect upon the ultimate behavior of the coatings. However, they are believed to be of primary importance. One such secondary factor which has not been taken into consideration is the extent of the care exercised in applying the coating and handling the coated pipe. It is a fact that methods of applying protective coatings have been greatly improved in recent years. No doubt some of the cases reported in which it was observed that the coating was not completely preventing corrosion of the pipe, particularly for coatings over three or four years in age, are due to faulty application. The total number of such cases, however, is very small, and does not affect the conclusions which have been reached.

1-a. Corrosion on the pipe is an extremely important observation, and forms the basis upon which the inspections are divided into two broad classes. The word "corroded" is used to indicate that corrosion has taken place on the pipe since the coating was applied. The presence of new rust and other evidences of metal attack are considered as positive proof of the inability of the coating to prevent corrosion, which obviously is its function. "Corroded" does not imply the manner in which corrosion was allowed to take place on the pipe subsequent to the application of the coating; nor does it signify how much corrosion has occurred. It simply designates the fact that in some manner the coating was rendered ineffectual and the pipe corroded.

### Progress of Corrosion

b. It would be extremely difficult to determine the exact moment at which a coated pipe becomes "corroded," and so it is that, for the border line cases, some doubt exists as to whether or not corrosion has occurred. In the very early stages of normal corrosion, the coated pipe, while showing no pit, assumes a bronze color. As corrosion progresses, pits develop; and the size, extent and number of the pits are, of course, a function of time, soil action, and the corrosiveness of the soil. Corrosive attack manifests itself in innumerable ways. One of the first indications of penetration for the majority of cases is rust stain outside of the coating, or the accumulation there of some form of corrosion product. These rust stains, in the case of unreinforced coatings, usually occur in the shallow craterlike depressions in the coating. Frequently, rust-colored soils may indicate corrosion where none exists. However, doubtful cases which arise are fortunately few in number, and have been ignored in computing the tables. A "corroded" pipe, when reported as such, has shown direct unmistakeable metal attack, which has occurred subsequent to the application of the coating.

c. Almost every surface extent of corrosion was observed in this series of inspections, from that of a single point of corrosion to an almost completely rusted pipe with little or no evidence of the coating remaining. The state of rupture of a coating is, of course, a function of numerous variables; and rarely, if ever, do the same conditions prevail at any two inspections. Consequently, two coatings, even if of identical material, are rarely found in exactly the same condition. Corrosion may first occur at one of two isolated points, or a number of corrosion points may develop simultaneously, and the number may increase thereafter until general rusting occurs. No account is taken of the extent of corrosion in the segregation of the inspections into the two classes "corroded" and "not corroded."

d. The external manifestations of corrosion frequently depend upon the type of coating as well as the soil. For example, in a well aerated soil, where a plentiful supply of oxygen reaches the point of corrosive attack, reddish orange or yellow rust is commonly found, under which—particularly in moist soils—is a black iron oxide. The outer or colored rust is composed principally of ferric oxides, and the black ferrous material represents a lower state of oxidation. Under the fabric of a wrapped treatment or in grease treatments where oxygen fails to reach the pipe, very often a white corrosion product is discovered. This material appears to be compounds of various forms of complex hydrated ferrous salts. The pipe under such a corrosion product is usually slightly pitted, or has an etched appearance.

### Looking for Corrosion

A coating cannot be inspected by casually looking at it. The proper place to look for corrosion is not on the coating itself, but on the pipe; and this cannot be done unless the coating is removed. Many instances might be cited where a casual observation of the coating would indicate no corrosion, but upon further careful inspection corrosion might be definitely identified. One inspection of an enamel coating in a filled area, composed of sand and silt discharged from an oil well containing highly corrosive waters, showed practically no distortion. It appeared as though the coating was affording perfect protection, but upon closer examination a few deep black oxide-filled pits were discovered. For the particular case in reference, the coating had been applied on new pipe about 3½ years previous to the time of inspection. The deepest pit found measured 235 mils (0.235 inch) in depth, practically through the pipe.

e. There are three major groups of causes resulting in the inability of a coating to resist penetration which, in the order of their importance, are: soil action, faulty application and careless treatment; inherent inability of the coating to offer an impermeable continuous film, material disintegration, and loss by accidental agencies, such as solution of the coating in oil which has leaked from the line.

### Soil Action

The term "soil action" is broadly used to include all soil factors which contribute to the mechanical disruption or distortion of the coating, whether or not the resulting distortion is due to various soil stresses, backfill, or clod stresses, bearing stresses on the trench bottom, etc. The distortion or disruption of the coating which results from certain soil stresses has been referred to as the soil stress effect. Certain soils, which have a sufficient cohesive force between the soil particles when in a dry state and a large moisture coefficient of expansion, and which adhere to the coating material when dry, are capable of causing considerable mechanical damage to the coating if allowed to become alternately wet and dry. It is not often possible to differentiate between the various causes of distortion, but numerous typical cases of all types have been identified.

Faulty application has been identified as a cause of the pipe becoming corroded in a few cases. Improper cleaning, irregular coverage of coating material, or incomplete coverage resulting in "holidays," or bare spots, in the coating, result in a corroded pipe, particularly if the soil is at all corrosive.

f. Irrespective of the agency by which a coating is caused to be classed as "corroded," corrosive attack is the determining factor. Corrosion is thus used as a criterion to indicate the inability of a coating to prevent corrosive attack only, and does not define the limit of its economic value—an important fact which should be borne in mind. It is improbable that the age at which a coating loses its economic value can ever be exactly ascertained. The corrosion criterion, nevertheless, indicates the inability of the coating to prevent corrosion under the conditions to which it was subjected; and it is reasonable to suppose that if a disrupted coating exposing corroded pipe were removed from a mildly corrosive soil to a corrosive soil, serious pitting would be experienced at the corroded points. Although the foregoing supposition is reasonable, nevertheless, the division of the coatings into the two classes on the basis of the appearance of corrosion must not be construed to represent failures of the disrupted coatings in an economic sense. Until such time, therefore, as the significance of the corrosion criterion is better understood, or until the extent of corrosion can be related to the protection afforded a pipe, the data herein presented should be interpreted with caution.

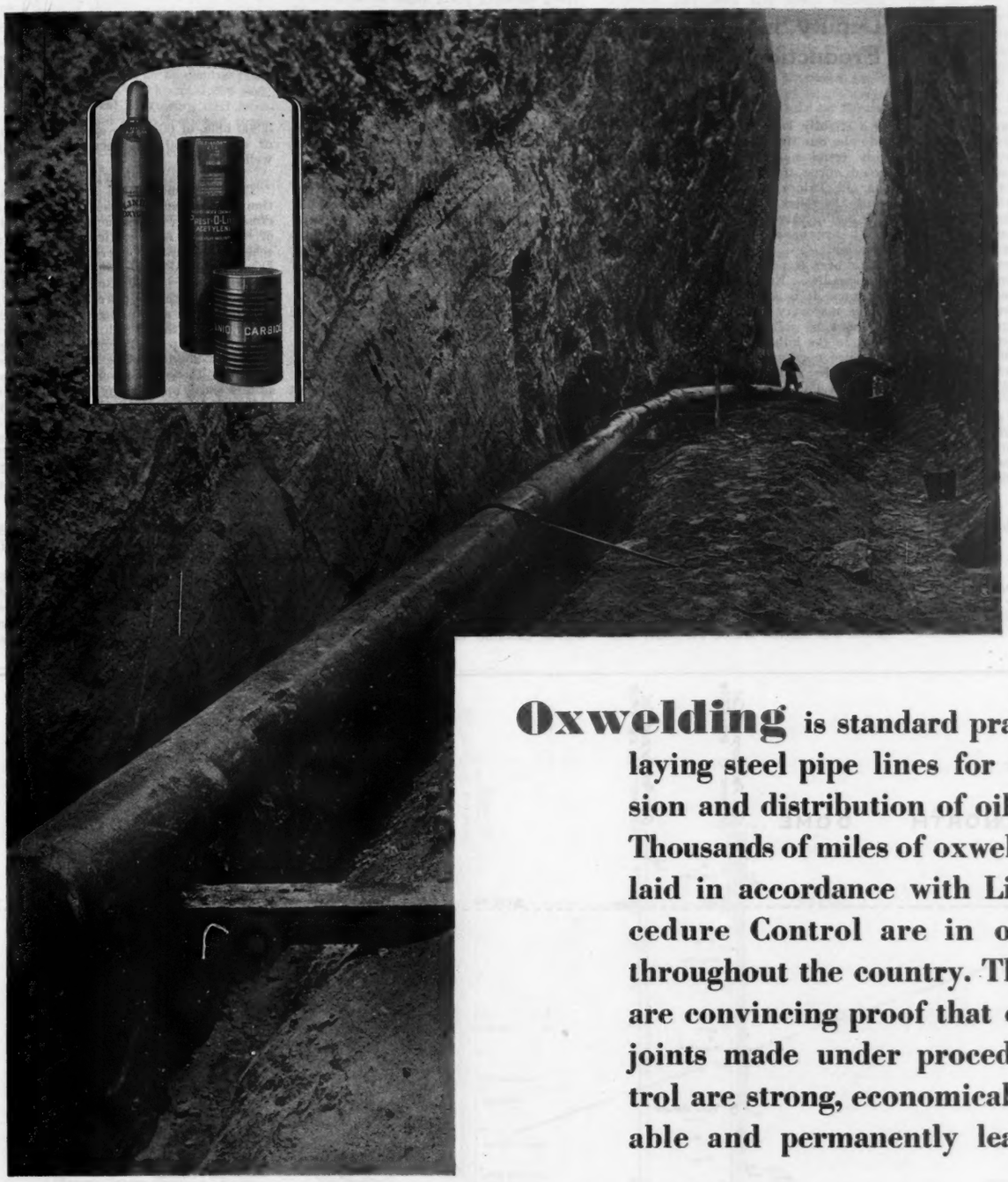
### Doubtful Cases

g. It has been stated that a few doubtful cases of corrosion on coated pipes have been recorded where, nevertheless, the conditions of the coatings have been such as to suggest incipient rupture as evidenced by corrosion. Strict adherence to the corrosion criterion has precluded judgment as to the coating's worth, even though experience indicates that under more corrosive conditions a positive indication of the distorted coating's inability to prevent corrosion would have been noted. There is considerable justification, however, in regarding with suspicion any of the thinner coatings which, after a moderate period of time, have suffered distortion to a point where, in a number of places, the coating has been materially reduced in thickness. This point of view is not accepted by a number of competent observers. However, confidence in the foregoing is gained from the numerous and diversified experimental indications of the time inadequacy with respect to moisture permeability of the thin, moderately thin, or indeed average pipe line thickness of coating materials. Logan has shown for a number of materials that the resistance to moisture permeability, as determined by electrical conductivity under low voltages, does not last long.

2. The type of coating is the next important factor to consider. It is important to know which of the various types or classes of treatments are more effective in preventing corrosion. It is obvious, therefore, that some system of classification, which takes account of the structure or material of the coating, must be used. It appears that most coatings are subject to rather rapid rupture, and that treatments reinforced with fabrics of the roofing felt type—particularly when two or more fabric plys are incor-

(Continued on Page 103)

# Oxwelded Pipe Lines for Oil and Gas

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# Report on Kettleman Hills Oil Field

## Deputy Supervisor Describes Geology of Area and Production Methods. California's Greatest Field

By E. H. Musser
Deputy Supervisor, District 5

The Kettleman Hills occupy a strip of land about 5 miles wide and 30 miles long on the west side of the San Joaquin Valley between Coalinga and Lost Hills. The major portion of the hills lies in Kings County, with a small area at the north end in Fresno County and at the south end in Kern County. The region is arid and, prior to the discovery of oil in a large quantity, was practically deserted. The hills are cut up by numerous sharp gullies so that most of the land has never been used except for grazing. The discovery made by Milham Exploration Co., in 1928, started a great change. New roads have been constructed, camps built, many wells begun, and one additional old well completed as a large producer. It promises to be the greatest oil field of California. At present there is but little subsurface information to indicate the probable extent of the productive sands. All wells must be drilled to depths of more than 6,000 feet to reach the oil measures.

The writer is indebted to R. I. Brown, petroleum engineer for Standard Oil Co. of California, and to J. H. Show, geologist for Associated Oil Co., for valuable information.

### Topography and Geography

The hills rise from the Kettleman Plains on the west to a height of about 700 feet above the plains and descend to a slightly lower elevation on the east into the San Joaquin Valley proper. The hills trend northwest-southeast with a broad curve toward the south opposite the old Tulare Lake bed. Toward the south the relief is much less pronounced. The gullies carry water only after rains, which are usually heavy and of short duration.

The area is poorly situated for obtaining supplies. From Coalinga, the nearest town, it is about 22 miles southeast to the discovery well; from Hanford, it is about 30 miles west to the nearest point in the hills; from Taft, it is about 50 miles northwest to the southern end of the hills. The nearest railroad is the Southern Pacific line to Coalinga, which passes along the north end of the hills.

### Discovery of Oil

The petroliferous possibilities of the area were recognized many years ago and prospecting has been sporadically carried on. Several noteworthy attempts were made to discover oil, with no success. Chief among these were the wells of Coalinga Kettleman Oil Co., Marland Oil Co., and Standard Oil Co. Unfortunately, none of these wells was deep enough, and it was left for Milham Exploration Co. to make the discovery. This was accidentally done in October, 1928.

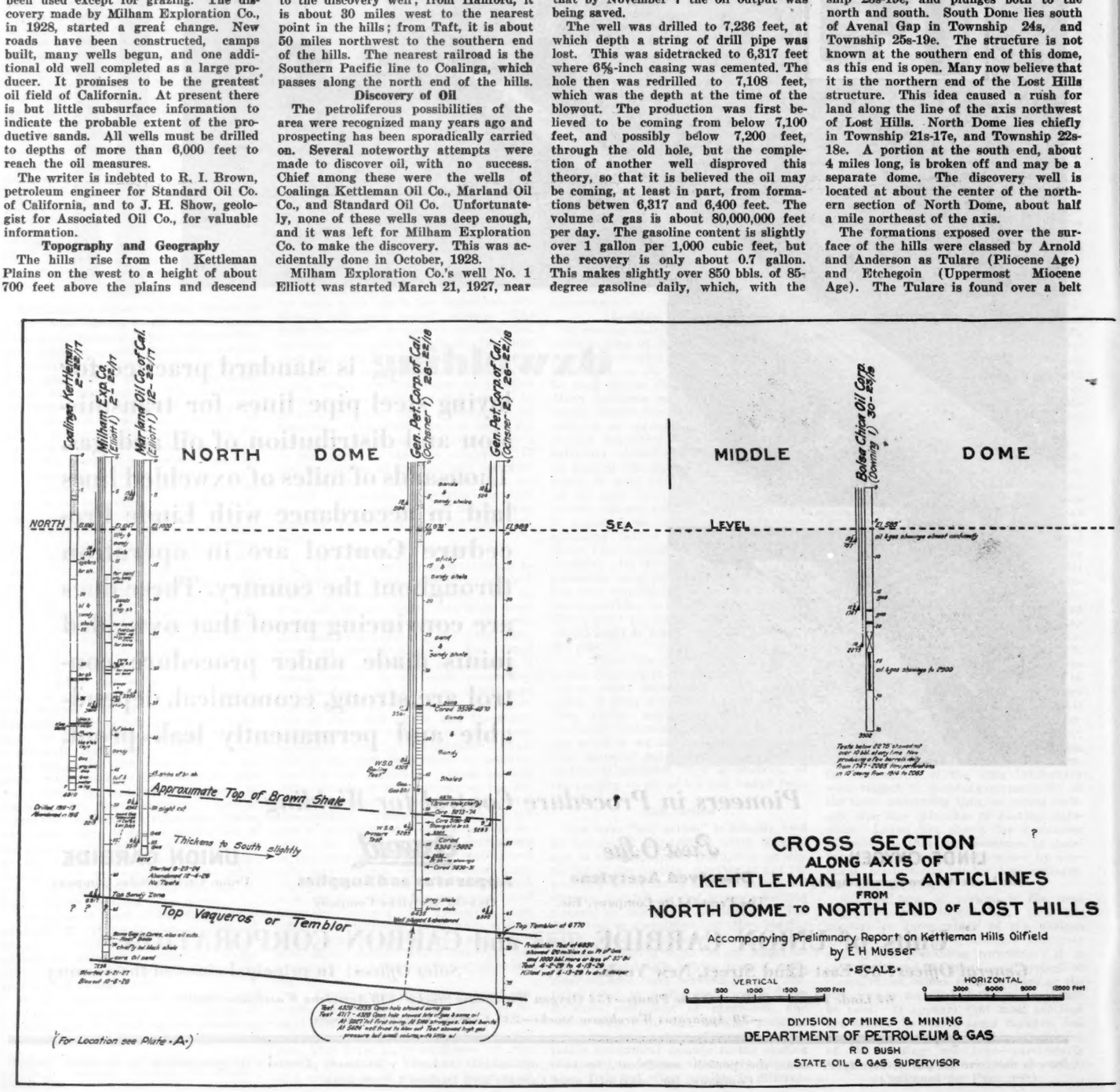
Milham Exploration Co.'s well No. 1 Elliott was started March 21, 1927, near the southeast corner of Section 2-22s-17e, M.D.B. and M. in Kings County, and completed, under control, November 7, 1928, with a production 30 days later of 3,670 bbls. per day of 60-degree gravity oil. The well blew out on October 5, 1928, while drill pipe was being run into the hole at 5,000 feet, and flowed out of control until October 25, 1928, when a partial control was obtained. Between October 25, 1928, and November 8, 1928, gas traps and tanks were installed, so that by November 7 the oil output was being saved.

The well was drilled to 7,236 feet, at which depth a string of drill pipe was lost. This was sidetracked to 6,317 feet where 6⅝-inch casing was cemented. The hole then was redrilled to 7,108 feet, which was the depth at the time of the blowout. The production was first believed to be coming from below 7,100 feet, and possibly below 7,200 feet, through the old hole, but the completion of another well disproved this theory, so that it is believed the oil may be coming, at least in part, from formations betwen 6,317 and 6,400 feet. The volume of gas is about 80,000,000 feet per day. The gasoline content is slightly over 1 gallon per 1,000 cubic feet, but the recovery is only about 0.7 gallon. This makes slightly over 850 bbls. of 85-degree gasoline daily, which, with the 3,800 bbls. of 60-degree oil, makes a total of about 4,650 bbls. per day from the well.

### Geology

The Kettleman Hills are a continuation to the south of the Coalinga anticline. Briefly, the structure is a series of three or four anticlines, lying en echelon, generally referred to as North Dome, Middle Dome, and South Dome. Middle Dome is a distinct structure lying mostly in the southwest part of Township 23s-19e, and plunges both to the north and south. South Dome lies south of Avenal Gap in Township 24s, and Township 25s-19e. The strucfure is not known at the southern end of this dome, as this end is open. Many now believe that it is the northern end of the Lost Hills structure. This idea caused a rush for land along the line of the axis northwest of Lost Hills. North Dome lies chiefly in Township 21s-17e, and Township 22s-18e. A portion at the south end, about 4 miles long, is broken off and may be a separate dome. The discovery well is located at about the center of the northern section of North Dome, about half a mile northeast of the axis.

The formations exposed over the surface of the hills were classed by Arnold and Anderson as Tulare (Pliocene Age) and Etchegoin (Uppermost Miocene Age). The Tulare is found over a belt


NORTH DOME
MIDDLE DOME
Coalinga Kettleman 2-22s/17
Milham Exp. Co. (Elliott) 2-22s/17
Marland Oil Co. of Cal. (Elliott) 12-22s/17
Gen. Pet. Corp. of Cal. (Ochsner I) 28-22s/18
Gen. Pet. Corp. of Cal. (Ochsner II) 28-22s/18
Boles Chior Oil Corp. (Dunning) 30-23s/19
NORTH
SEA LEVEL
Approximate Top of Brown Shale
Thickens to South slightly
Top Sandy Zone
Top Vaqueros or Temblor
Top Temblor at 6770
(For Location see Plate - A-)
CROSS SECTION
ALONG AXIS OF
KETTLEMAN HILLS ANTICLINES
FROM
NORTH DOME TO NORTH END OF LOST HILLS
Accompanying Preliminary Report on Kettleman Hills Oilfield
by E H Musser
-SCALE-
VERTICAL
0 500 1000 1500 2000 Feet
HORIZONTAL
0 3000 6000 9000 12000 Feet
DIVISION OF MINES & MINING
DEPARTMENT OF PETROLEUM & GAS
R D BUSH
STATE OIL & GAS SUPERVISOR

about a mile in width on each side of the hills, and closing around the north end. The Etchegoin is found in the center. Practically all the wells drilled have been at locations where the Etchegoin is the surface formation.

The age of the productive formation, according to the classification of Arnold and Anderson, is probably Lower Miocene (Vaqueros). The production in the Milham well is known to be coming from formations between 6,317 and 7,236 feet, and in the General Petroleum well from between 6,502 and 6,850 feet, and probably between 6,770 and 6,850 feet. The General Petroleum completion indicates that the whole Vaqueros series may reasonably be expected to contain oil (approximately 900 feet).

The gravity and character of the oil (semiparaffin base) gave rise to the theory that the oil was coming from the Tejon (Eocene) of Moreno (Upper Cretaceous) as high gravity paraffin oil is obtained from these formations in the Oil City area of the Coalinga Field. This theory, however, is not now considered correct.

Arnold and Anderson, in discussing the oil possibilities of Kettleman Hills, state concerning the south side of Section 34-21s-17e (1½ miles northwest of the discovery well): "At this point the beds are practically horizontal on the very axis of the fold, and the depth to the top of the Jacalitos is probably only a few hundred feet, possibly about 500 feet. Thence southeastward to Section 1-23s-18e, the thickening of the formation is more than offset by the pitch of the anticline in the opposite direction, and the depth to the Jacalitos gradually decreases. Thence southward the depth is probably nowhere more than a few hundred feet, and is in general less than in the northern part of the hills." The Jacalitos formation referred to is classed in Bulletin No. 398 as early upper Miocene Age, occurring immediately below the Etchegoin and consisting of 3,800 feet, more or less, of "slightly consolidated marine fossiliferous beds of light gray, greenish gray, blue and brown sand, clay and fine gravel, indurated into sandstone, shale, and conglomerate with some siliceous shale."

Below the Jacalitos comes the Santa Margarita (Upper Middle Miocene of Arnold and Anderson) with a thickness of between 200 and 1,000 feet in the Kreyenhagen Hills located to the west of Kettleman Plains. This formation consists of white, purple and brown siliceous, calcareous and argillaceous shales.

Arnold and Anderson conclude that the combined thickness of the lower part of the Etchegoin, the Jacalitos, and the Santa Margarita is at least 3,500 feet in the northern part and 4,500 feet in the south-central part. These figures are based on known thickness of these formations in the Kreyenhagen Hills, the first line of hills to the west, just across the broad valley called Kettleman Plains. It is assumed that the Jacalitos becomes thinner eastward from the Kreyenhagen as the Etchegoin is known to do. Later the following statement is made: "On the other hand, if the formations are as thick as they are in the Kreyenhagen Hills the top of the Vaqueros would be considerably below 4,500 feet, even along the axis of the anticline." If the logging of the well is correct in placing the top of the Vaqueros at approximately 6,300 feet, the Jacalitos and Santa Margarita must be considerably thicker than in the Kreyenhagen Hills, rather than thinner, or the same thickness. The alternatives are that the top of the Vaqueros is actually higher and that production is coming from the Tejon (Eocene) or below, or that some other series of beds intervenes between the Santa Margarita and Vaqueros. What has actually happened is that a considerable thickness of brown shales, increasing in thickness from north to south, has been laid down between the Santa Margarita and the Vaqueros. At the Milham location, the thickness of these beds is roughly 1,500 feet; at South Dome, it is over 2,000 feet. The formation is identical with the Maricopa shale of the Midway district, and is generally referred to as Maricopa shale or Brown shale.

### Now the Temblor

According to Bulletin No. 398, the Vaqueros (Lower Miocene) consists of 900 feet of "Marine fossiliferous gray sandstone and sand with minor amounts of conglomerate and gravel and diatomaceous and clay shale. "The Tejon (Eocene. consists of (a) upper part, marine white and brown diatomaceous and foraminiferal shale." (b) Lower part Marine yellowish, brown and gray fossiliferous and locally lignitic sandstone and dark clay, with a local basal conglomerate."

Later geologists have discarded or altered the nomenclature of Arnold and Anderson, introducing the term Temblor to include what previously was termed Vaqueros, and the terms Santa Margarita to include Upper Miocene and Maricopa for Middle Miocene. These terms are all loosely used now so that the average person is more or less confused.

It is generally believed now that the productive horizon is Middle to Lower Miocene Age. Whether the formation is called Vaqueros or Temblor is not important. The reef beds, which are so prominently exposed in the Kreyenhagen district, are said to have been penetrated in the Milham well between 6,800 and 6,900 feet, and a black shale, prominent in the East Side Coalinga district, from 7,000 to 7,100 feet. It is a fact also that from 6,300 to 7,236 feet the formation was decidedly sandy except for the interval from 7,000 to 7,100 feet, which was logged as black shale. Thus it appears that the productive strata resemble the Vaqueros described above more than any of the other formations.

The underground structure is, of course, still somewhat of a question, even though the oil sand is now known to extend over a large part of the North Dome. Because of the generally continuous surface beds, operators are expecting a similar underground condition. The surface does show numerous traces of faulting, but it is probable that these do not continue to a great depth. The breaks between the various domes and in North Dome itself may be due to faulting. The surface dips are, for the most part, fairly low, ranging from 3 degrees to 30 degrees, with a majority under 20 degrees. These dips are not uniform even in a local area, so it is probable that some are distorted by surface slippages.

### Oil Analysis

The oil analysis shows a gasoline yield of 85 per cent of 61.2-degree A.P.I. gravity, and 5.9 per cent of 41.2 degree, the residue being 35-degree gravity. This latter is said to contain approximately 2.5 per cent asphalt and 2.5 per cent paraffin.

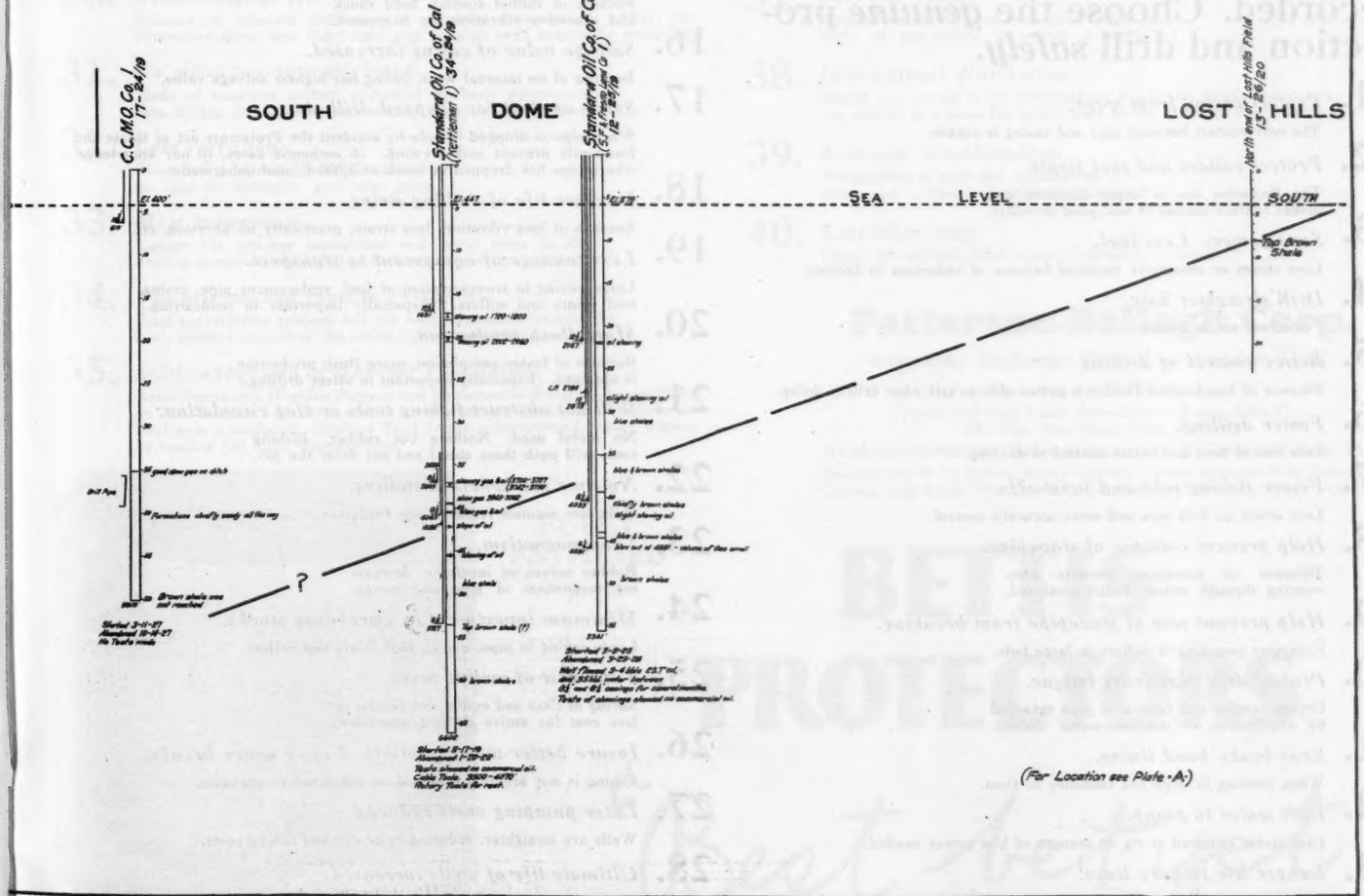
A sample of gas taken after passing through the gas traps was analyzed as follows:

| | Per cent |
|---|---|
| Methane | 85.05 |
| Ethane | 7.63 |
| Propane | 4.22 |
| Isobutane | 0.71 |
| Butane | 1.41 |
| Iso-Pentane plus | 0.98 |
| | 100.00 |

The following gasoline constituents

(Continued on Page 102)

PLATE C


SOUTH DOME
LOST HILLS
SEA LEVEL
SOUTH
C.C.M.O. Co. / 17-24/19
Standard Oil Co. of Cal (Kettleman) 34-24/19
Standard Oil Co. of Cal (S.F. Kreyenhagen) 12-25/19
North end of Lost Hills Field 13-26/20
Top Brown Shale
(For Location see Plate A)

# 40 incontestable

## Any of 40 reasons is sufficient to merit your use of Bettis Protectors on every rotary string—whether for shallow or deep drilling. 150,000 Bettis Protectors have been placed in service and not a single instance of failure has been recorded. Choose the *genuine* protection and drill *safely*.

# BETTIS

1. *Protect casing from wear.*
   The only contact between pipe and casing is rubber.
2. *Protect collars and tool joints.*
   The Protector has a larger diameter and makes contact instead of tool joint or collar.
3. *Save power. Less fuel.*
   Less steam or electricity required because of reduction in friction.
4. *Drill straighter hole.*
   Protectors act as guides.
5. *Better control of drilling.*
   Because of less friction Driller is better able to tell what drill is doing.
6. *Faster drilling.*
   Less loss of time and better control of drilling.
7. *Fewer fishing jobs and twist-offs.*
   Less strain on drill pipe and more accurate control.
8. *Help prevent collapse of stovepipe.*
   Thinness of stovepipe permits easy wearing through unless Bettis-protected.
9. *Help prevent seat of stovepipe from breaking.*
   Excessive pounding of collars in large hole.
10. *Protect drill pipe from fatigue.*
    Crystallization and fatigue of pipe retarded by elimination of metal-to-metal contact.
11. *Save brake band lining.*
    When running in, pipe has tendency to float.
12. *Less water to pump.*
    Less steam required at rig on account of less power needed.
13. *Longer life to wire lines.*
    Less friction; therefore less load when pulling out.
14. *Less strain on derrick and engine.*
    Minimum strain results in longer life to equipment.
15. *Less vibration.*
    Because of rubber contact, hard shock and excessive vibration are overcome.
16. *Salvage value of casing increased.*
    Because of no internal wear, casing has highest salvage value.
17. *Serve as float for dropped drill pipe.*
    When pipe is dropped in hole by accident the Protectors act as floats and frequently prevent corkscrewing. (6 authentic cases, to our knowledge, where pipe has dropped as much as 5,000 ft. and unharmed.)
18. *Increase life of drilling string.*
    Because of less vibration, less strain, practically no abrasion, etc.
19. *Less tonnage of equipment to transport.*
    Large saving in transportation of fuel, replacement pipe, casing, tool joints and collars. (Especially important in wildcatting.)
20. *More flush production.*
    Because of faster completion, more flush production is obtained. (Especially important in offset drilling.)
21. *Will not obstruct fishing tools or clog circulation.*
    No metal used. Nothing but rubber. Fishing tools will push them ahead and not delay the job.
22. *No time lost where installing.*
    Only few seconds required per Protector.
23. *Less magnetism.*
    Rubber serves as insulator, decreasing magnetism of pipe and casing.
24. *Minimum investment in warehouse stocks.*
    Large saving in pipe, casing, tool joints and collars.
25. *Total cost of well is less.*
    Saving of time and equipment results in less cost for entire drilling operation.
26. *Insure better water shut-off. Fewer water breaks.*
    Casing is not severely pounded or subjected to abrasion.
27. *Later pumping costs reduced.*
    Wells are straighter, reducing later rod and tubing costs.
28. *Ultimate life of wells increased.*
    Casing is not worn thin; therefore water intrusion delayed.

# Reasons for PROTECTORS

**29.** ***Can't fall in hole.***
No danger of Protectors causing bad fishing job being made if seamless rubber, (without metal) lighter than rotary mud.

**30.** ***Retain original grip on drill pipe.***
Because of inherent resiliency of specially compounded rubber, the Protectors never lose their tight grip on pipe until eventually worn out.

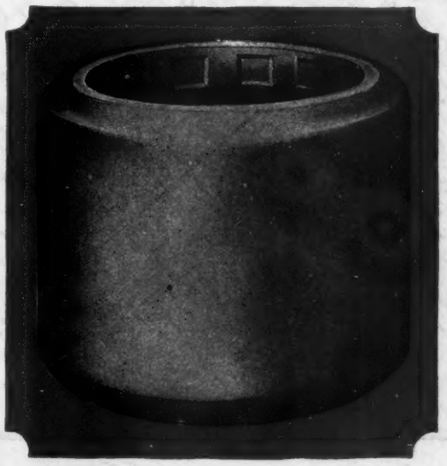
**31.** ***No metal to injure workmen.***
Made of seamless rubber, protected by basic patents,—no pins, hinges, or metal projections that might injure workmen.

**32.** ***Less corrosion.***
There being no metal in the Protectors, no rust or corrosion can take place.

**33.** ***Most economical.***
Longer life, quicker installation and lower costs in all drilling operation make Bettis Protectors most economical.

**34.** ***The original and genuine Protectors.***
First anti-friction rubbers and the only Protectors covered by basic patents that cover the entire field of anti-friction rubbers.

**35.** ***Solely applicable to Hopkins Tool Joints.***
Basic Bettis and Hopkins Patents and fundamental design make available an Anti-friction Tool Joint that is unquestionably the best and most practical ever introduced. Hopkins Tool Joints manufactured, under license, by leading Oil Tool Manufacturer.



FULLY PATENTED

**36.** ***Resists oil.***
While not guaranteed against hot or high gravity oil, Bettis Protectors show unusual service in wells when such oil is circulated.

**37.** ***Save top casing.***
Applied to Kelly joint, expensive replacement of top joints of casing is saved.

**38.** ***International distribution.***
Stocks are carried in all principal oil fields and Bettis Protectors are offered at a price far below their actual worth to the Industry.

**39.** ***Less cost of rethreading.***
Rethreading of pipe and replacement of joints and collars is considerably less.

**40.** ***Less labor costs.***
Direct and indirect labor costs are greately reduced.

**Patterson-Ballagh Corp.**

Insurance Exchange Bldg., Los Angeles, Calif.

*New York City Office*—39 Cortlandt St.
*Texas and Gulf Coast Distributors: Bettis Sales Co.,* 616 Pub. Nat. Bank Bldg., Houston
*Oklahoma Distributors:* Bailey & Becker Co., 410 Thompson Bldg., Tulsa
*Stocks carried in* Los Angeles, Santa Fe Springs, Ventura, Kettleman Hills, Bakersfield, Coalinga, Long Beach, Tulsa, Houston, Wink, Calgary, Alberta, Can.; New York City.

# BETTIS PROTECTORS

"Best bet yet"

were found, in gallons per 1,000 cubic feet:

| | Gallons |
|---|---|
| Propane | 1.14 |
| Isobutane | 0.23 |
| Butane | 0.44 |
| Iso-Pentane plus | 0.38 |

### Drilling Methods

Drilling of new wells is being done exclusively with rotary tools. The equipment in every case is as heavy and substantial as it is possible to obtain. At present both steam and electricity are in use for power. The drilling machinery in use is of three general types: (a) Straight drive rotary; (b) Hild differential drive; and (c) Doheny-Stone hydraulic drive. The most common casing program is 20-inch or 18⅝-inch, 11¾-inch or 13⅜-inch, 9-inch or 8⅝-inch. The latter will be the final water string unless unforeseen trouble is encountered. Whether an oil string is used will depend on results obtained in the first wells completed. Indications are that an oil string will not be necessary unless it is desired to cement or blank off a portion of the oil zone.

The wells are being drilled in accordance with a plan of one well to 20 acres. Under this system, the number of the well determines its location as the first digit indicates the vertical row, and the second, the horizontal row starting from the northwest corner of the section. Another feature of the spacing is the staggered offset.

Hazards of drilling are numerous. Trouble begins with loss of circulation at depths ranging from a few hundred feet to 2,000 feet. These depths are not uniform, so it does not appear that the loss is in any single stratum. Surface strings are usually cemented in the neighborhood of 1,500 feet, which is below most of the lost circulation depths. One company, however, has had trouble to about 2,000 feet after landing this upper string.

The next troublesome depth is in the Brown shale from about 5,000 feet to the top of the Temblor at 6,300 feet. Here considerable gas pressure, combined with a shale which tends to cave, makes progress uncertain. Another difficulty is the strong flow of water at about 5,300 feet which will probably be found in some of the wells. In the General Petroleum Corp. of California wells in Township 22s-18e, this water flowed up through a full column of mud and built up a pressure of 1,800 pounds per square inch when closed in. In General Petroleum Corp. of California well No. 2 "Ochsner" Section 26-22s-18e, this water started to flow about the time the drill pipe was pulled out and continued until fresh mud was pumped in.

Below 6,300 feet in the Vaqueros formation the drilling is extremely hard, and in some cases this will undoubtedly cause the drill pipe to twist off. High gas pressure will also be encountered and altogether the drilling is fully entitled to the term "hazardous." Various guesses as to the number of successful completions of wells have been made. Probably 25 per cent will be failures due to mechanical troubles and certainly some more due to lack of oil.

The problem of production will consist in determining the proper size and depth of tubing and flow orifices, assuming that all the early wells will flow. The result desired will be, of course, to hold the gas production to a low figure. This will be desired for two reasons: First, because all the gas probably can not be utilized; and, second, to hold the gas in the ground to increase oil recovery. By the time the first wells are completed, a market for some of the gas will probably be opened, but almost certainly not for all that will be available.

### Costs

Costs of drilling are high, although perhaps not excessively so for the depth obtained. The average cost of new wells will probably be in the neighborhood of $250,000 each, although this figure might be slightly less or considerably more. The initial cost of derrick and outfit is high, because of the hilly ground and heavy material needed. The depth requires extra heavy casing and other equipment. The isolated location increases labor costs and transportation. In fact, nearly everything costs more than it would in any other California oil field.

In some cases, the land cost was high. Those who were in before the discovery got land for almost nothing, but those who entered later paid $1,000 an acre, or more, for leases or permits.

### Land Ownership

About one-half of all the acreage which may be productive is owned in fee by Standard Oil Co. of California. This land was obtained in the merger with Pacific Oil Co. Originally it was land granted to the Southern Pacific Railroad. The remaining land is largely owned by the United State Government and is entirely covered by prospecting permits.

### Underground Data

Very little is known definitely concerning underground structure. A cross section through the deepest wells from the North Dome to the South Dome is shown. The correlations indicated are decidedly uncertain, as no one but Milham Exploration Co. and General Petroleum Corp. has penetrated the oil sand. The few facts known are as follows:

1. At 6,770 feet the well of General Petroleum Corp. encountered the Vaqueros or apparently 445 feet deeper than in the well of Milham Exploration Co. The elevation of the Milham well is 58 feet higher; hence, the difference between the wells below sea level would be about 500 feet.

2. The Chanslor-Canfield Midway Oil Co. well in Section 17-24s-19e did not reach the Miocene beds at 5,010 feet.

3. At 6,602 feet the Standard Oil Co. of California well in Section 34-24s-19e was not in the Vaqueros. The exact top of the Santa Margarita is not definitely established in this well, although it is probably about 4,500 feet.

4. At 5,541 feet the Standard Oil Co. of California well in Section 12-25s-19e was not in Vaqueros. The top of the Santa Margarita was found at about 3,700 feet. The thickness of brown shale in these latter two wells is over 2,000 feet. In the Milham Exploration Co. well the thickness was about 1,500 feet, and in the General Petroleum Corp. well about 1,600 feet. This proves that the formation thickens to the south underground as it does on the surface. Just how thick this formation is in the Middle Dome and in the South Dome is yet to be determined. Since it probably thickens to 5,000 feet at Lost Hills, it should be at least 3,000 feet in the South Dome. At the Ohio Co. location in Section 35-24s-19e the top of the Vaqueros, on this assumption, would be 7,500 feet.

5. Standard Oil Co. of California well No. 81, Section 11-22s-17e, found the top of the Brown shale at 4,830 feet and the flowing water at 5,090 feet.

6. Marland Oil Co. of California well No. 12-8, Section 12-22s-17e, found the top of the Brown shale at 4,878 feet.

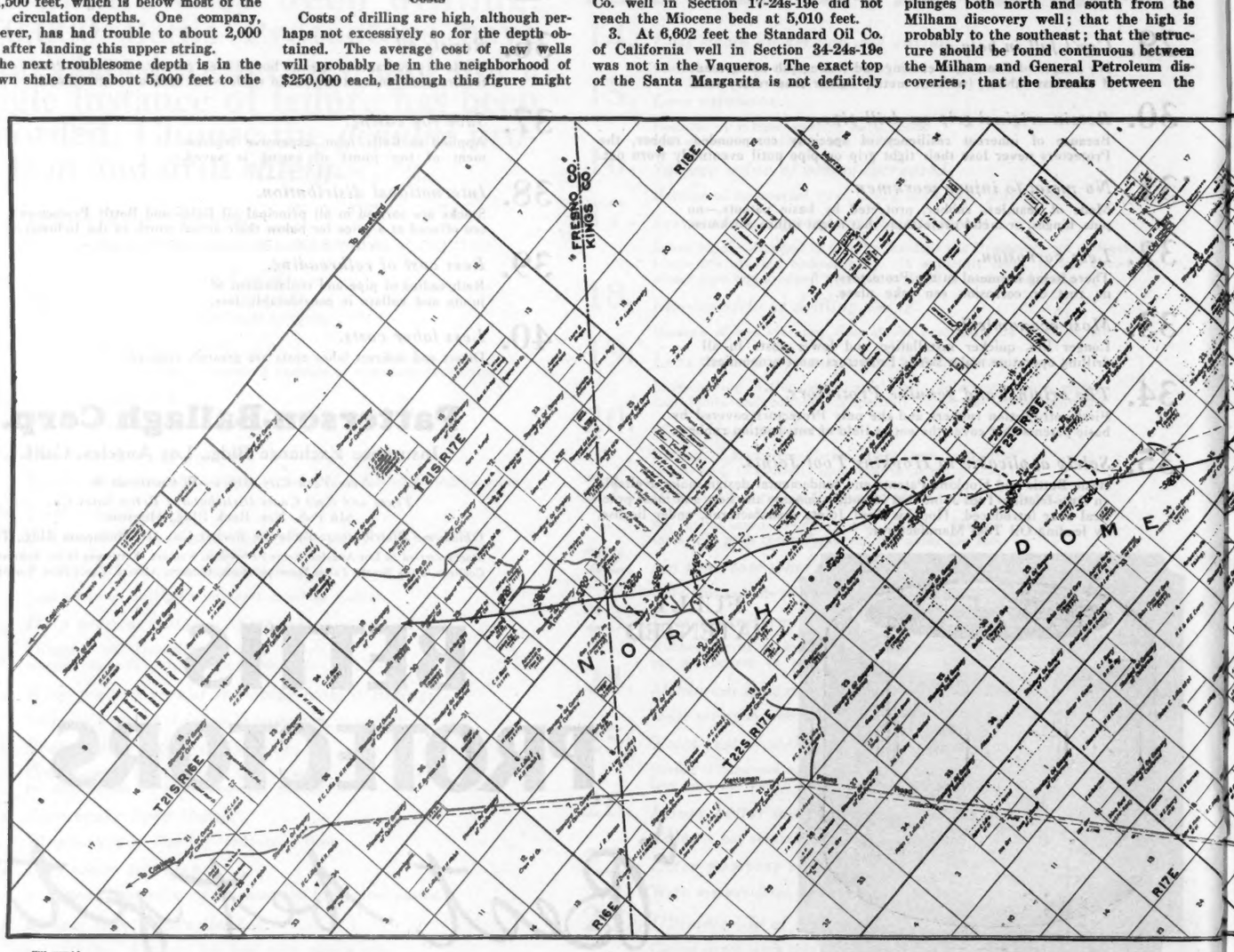
7. Milham Exploration Co. well No. 1 "Beal", Section 34-21e-17e, probably found the top of the Brown shale at 5,300 feet.

8. Milham Exploration Co. well No. 1 "Kennedy," Section 28-21s-17e, encountered the Brown shale at about 5,460 feet.

9. The Coalinga Kettleman Oil Co. well in Section 2-22s-17e probably did not have the Brown shale at 4,810 feet.

10. Shell Oil Co. well No. 1 "Armstrong," Section 8-22s-18e, encountered the Brown shale at about 4,955 feet.

These data indicate that the structure plunges both north and south from the Milham discovery well; that the high is probably to the southeast; that the structure should be found continuous between the Milham and General Petroleum discoveries; that the breaks between the



North Dome, Middle Dome and South Dome are probably structural depressions; and that production in South Dome will be deeper than in the North Dome.

The map of the field shows contours at the top of the Vaqueros in the North Dome. These contours are highly uncertain, and are shown merely to give some idea of the structure from the data on hand.

Kettleman Hills is unique among the oil fields of California: First, in the depth at which the first oil is obtained; and, second, in the quality and quantity of oil. Because of the large area which seems certain to be productive and the high gasoline content of the oil, this field becomes a decided factor in gasoline production and gasoline prices. It is not possible to predict with much accuracy how great a factor in the gasoline market this field will be, as there is no certainty that some of the wells now drilling will produce oil. Besides the hazards of deep and hard drilling, some of the wells may be too far down on the flanks of the structure to obtain production and the Middle Dome and South Dome are still unproved areas.

## FIELD INSPECTION OF PROTECTIVE COATINGS

(Continued from Page 96)

porated in the coating—stand a considerably greater chance of preventing corrosion. It is important, therefore, that due consideration be given each type of treatment before any generalizations, such as the above, be accepted as facts.

**Large Number of Variations**

When the numerous kinds of materials ordinarily employed in protective coatings are considered, it is readily understood that a very large number of variations may result from the utilization of two or more materials in the construction of a coating. It is somewhat difficult, therefore, to reduce the great variety of coatings ordinarily encountered in the field to a few fundamental types for purposes of comparison and study.

In general, materials have been considered of less importance than the structure of the complete coating. Nevertheless, it has seemed advisable to differentiate between a few types of materials. For example, rather than use the word "bitumen" to describe an application of either coal tar or asphalt, these materials have been designated by their individual names. However, no attempt has been made to specify any particular brand or make of asphalt or coal tar. Bitumens, filled with very finely divided materials, have been classed as enamels; and these may be either coal tar or asphalt enamels. However, all the enamel inspections reported in this investigation are coal tar base enamels.

**Inspections Tabulated**

The 449 inspections have been divided into 10 groups as shown in Table 2. The groups with the exceptions of 1 and 2 include coatings of a single class or type. Groups 1 and 2 have been included in the table for the sake of completeness in presenting the data.

Group 1—Coatings on exposed lines. This group includes inspections made on coated pipes which crossed gulleys, creek bottoms, etc., and which were consequently not buried. The inspections recorded in this group are enamel coatings with the exception of two emulsion coatings neither of which prevented the pipe from corroding.

Group 2—Miscellaneous treatments. This group includes 23 inspections, and is composed of a collection of coatings which could not be placed under one of the other groups. It includes seven inspections of either enamel, coal tar, asphalt or asbestos filled cut-back bituminous material, wrapped with a heavy woven unsaturated fabric, such as burlap or canvas; 1 inspection of concrete; 13 inspections of enamels protected by either uncemented, loosely applied fabric wrap (4), wood veneer (1), or uncemented and loosely applied Sisal Kraft paper (8); and 2 inspections of coatings for which an adequate description was not available.

Group 3—Asphalt-emulsion coatings. This group is composed of 4 inspections of two coats of emulsion, brushed or sprayed on the pipe, and 14 inspections in which the emulsion coat was followed by dry cement dusted or sprayed on the coating.

Group 4—Grease treatments. This group consists of 12 inspections of one or more coats of grease, 14 inspections of greases wrapped with a saturated woven fabric, and six cases of grease treatments protected with a bituminous saturated wrapper. In four cases only the grease contained no inhibitor. Three cases of a grease-saturated asbestos pipe line felt wrapped treatment have been included under Group 8.

**TABLE 2—DIVISION OF COATING INSPECTIONS***

| Group | Description | No. of Inspections |
|---|---|---|
| 1 | Coatings on exposed lines | 7 |
| 2 | Miscellaneous treatments | 23 |
| 3 | Asphalt-emulsion treatments | 18 |
| 4 | Grease treatments | 32 |
| 5 | Enamels | 157 |
| 6 | Unreinforced bituminous materials applied hot | 51 |
| 7 | Paints and cutback bituminous materials | 54 |
| 8 | Single ply felt wrapped treatments | 37 |
| 9 | Double ply felt wrapped treatments | 43 |
| 10 | Triple ply felt wrapped treatments | 15 |
| | Total | 437 |

*Does not include 12 doubtful cases.

Group 5—Enamels. Three makes of coal tar base enamels are included in this group. The numbers of inspections of the three makes are, respectively, 1, 75 and 81.

Group 6—Unreinforced materials applied hot. Treatments involving paints or primers as first coats for the subsequent hot application of coal tar materials and asphalts have been included in this group. A few of these applications have been followed by a wrap of Kraft paper, which is not considered a protection against corrosion.

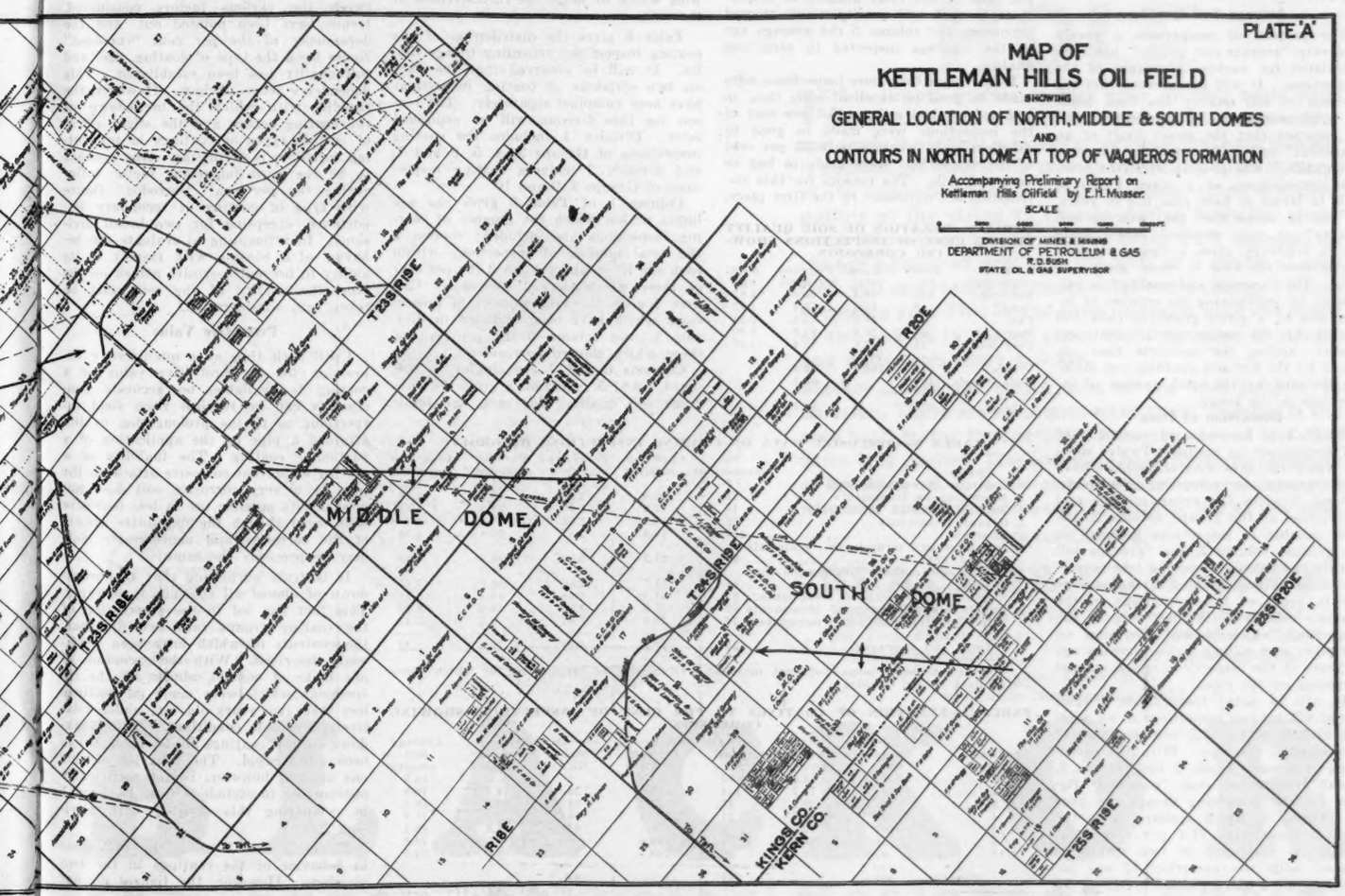
Group 7—Paints and cutback bituminous materials. This group contains a large variety of coatings applied cold, such as paints or primers alone or followed by an application of cutback bituminous material. Five cases of an asbestos filled cutback bituminous material are included, as well as three cases of a cutback bituminous material followed by a wrap of impregnated woven fabric.

Group 8—Single ply felt wrapped treatments. This group includes 29 inspections of treatments using asphalt, coal tars, and enamels applied hot as cementing materials for various saturated and coated felts; five cases of cementing materials applied cold, three of which are greases wrapped with a grease-saturated asbestos pipe line felt; and three inspections of treatments using a combination of cementing materials applied both cold and hot.

Group 9—Double ply felt wrapped treatments. This group is similar to Group 8, except that two plies of fabric are incorporated in the coating. It contains 31 inspections of coatings using bituminous materials applied hot; 11 cases of cutback bituminous materials, 9 of which showed the pipe to be corroded; and one case where both hot and cold applied bituminous materials were used.

Group 10—Triple ply felt wrapped treatments. This group is similar to the two previous groups, except that only bituminous materials applied hot have been used and three layers of fabric. Four of the fifteen heavily reinforced treatments in this group have been further protected from distortion by applying an outer layer of a sand and sulphur mix, asphalt-emulsion, and cement and sheet iron longitudinally wrapped and wired on over the coating.

3. In the random field inspection of



protective coatings, there is, of course, less chance of finding a given type of coating failing to prevent corrosion the younger the coating is. In making comparisons between classes or types of coatings, it is important, therefore, to compare the behavior of different types of coatings within comparable age limits.

**Corrosive Quality of Soil**

4. A final observation of considerable importance, but of questionable accuracy, is the corrosive quality of the soil. Five arbitrary classifications of soil quality have been used as follows:

Excellent.....Standard 8-in. steel pipe lines last over 24 years
Good.....18 to 24 years
Fair.....12 to 18 years
Bad..... 6 to 12 years
Very bad .....Less than 6 years

Information as to soil quality has been derived from a number of sources: a. Pit hole records, where such are available, constitute the most reliable data from which an estimate of soil quality may be made. b. Some knowledge of soil quality is obtained from a record of the pipe's condition and pipe replacements in the case of a reconditioned line, by the behavior of neighboring steel or iron structures, etc. c. A questionable third method has been resorted to in a number of cases. It is assumed that soils classified as the same by the Bureau of Soils (United States Department of Agriculture) have potentially the same corrosiveness in the absence of alkali intrusions or excessive differences in average moisture contents. Such observations or determinations of soil corrosive quality are, of course, extremely rough, and serve only as an indication of the type of soil encountered. The importance, however, of having some knowledge as to the corrosive quality of the soil is apparent when it is considered that it would be manifestly unfair to compare two materials, one of which was in a noncorrosive soil and the other in a highly corrosive soil.

**Average Soil Quality**

For purpose of comparison, a purely arbitrary "average soil quality" has been calculated for various groupings of the inspections. It will be observed that the division in soil quality has been made on a six-year basis. Consequently, if it be assumed that the upper limit of an "excellent" soil is 30 years, the "average soil quality" will give an apparent average corrosiveness of a given group of soils in terms of bare pipe life in years. It will be noted that the "average soil quality" as thus obtained, while being purely arbitrary, gives a figure which is comparable for two or more groups of soils. The "average soil quality" is calculated by multiplying the number of inspections of a given group in each soil quality by the mean age of that soil quality, adding the products thus obtained for the five soil qualities and dividing the sum by the total number of inspections in the group.

**Discussion of Data**

Table 3 is a condensed summary of 437 inspections by groups. Twelve cases for which the data were incomplete have been ignored in compiling the table. Column 1 gives the group number and description of the group; column 2, the total number of inspections included in the groups; column 3, the "average soil quality" as calculated by the scheme previously described; column 4, the average age in years of the inspections in the groups; column 5, the per cent of the inspections which showed corrosion on the pipe; and column 6, the average age in years of the inspections which showed corrosion on the pipe.

It will be noted from Table 3 that, out of 437 random inspections at an average of 2.99 years, 72.3 per cent showed corrosion on the pipe. With the exceptions of Groups 1 and 2 and Groups 8, 9 and 10, the per cent "corroded" figures for the remaining groups are over 70. Group 5, which appears to be the best of these with 71.4 per cent "corroded," is composed of two makes of enamel with the exception of one inspection on a third enamel. Out of 75 inspections on one of these enamels, 50 per cent showed corrosion; while of 81 inspections on the second enamel, 91.3 per cent showed corrosion. However, in view of the fact that for the first enamel one-third of the coatings less than one year old showed corrosion and one-half of the inspections between one and two years of age showed corrosion, no subdivision has been made in the enamel group.

Groups 3, 4, 6 and 7 show rather high per cent "corroded" figures, even though the average ages of these groups, excepting Group 6, are less than two years. In justification to Groups 3 and 4, it should be pointed out that the data are quite meager, and that the "average soil qualities" indicate rather corrosive soils for the groups.

The per cent "corroded" figures for Groups 5 and 8 compare favorably, but it should be noted that the difference in average ages is too great to justify direct comparison between these two groups. The "average soil quality" for the two groups is the same.

Since the "average soil qualities" and average ages for Groups 6 and 8 are about the same, these two groups can be directly compared. The data indicate a decided difference in behavior of the two types of coatings.

**Qualifies Comparisons**

In comparing the various types of coatings in the foregoing paragraphs, it has been implied that a direct comparison is justified only when the average ages and soil qualities are about the same. Table 4 gives the distribution of the inspections with respect to soil quality. The table does not include 12 doubtful inspections nor seven members of Group 1. Column 1 gives the soil quality. Column 2 gives the total number of inspections in each soil quality. Column 3 gives the per cent of the total number of inspections in each soil quality, ignoring the number of inspections for which there were no data. Column 4 gives the per cent of the total number of inspections in each soil quality which showed corrosion, and column 5 the average age of the coatings inspected in each soil quality.

It is evident that more inspections were made in good or excellent soils than in bad or very bad soils:—46.8 per cent of the inspections were made in good or excellent soils, whereas only 25 per cent of the inspections were made in bad or very bad soils. The reasons for this distribution are obvious. In the first place, the range of corrosiveness is large for excellent soils; and, in the second place, bad or very bad soils are not encountered very often in long pipe lines. Experience indicates that ordinarily the per cent of bad soils encountered along the length of a pipe line constitutes a small fraction of the whole. It should not be inferred from Table 4 that the distribution of corrosive soils along any pipe line will conform to the figures in column 3. Many inspections were purposely made in corrosive soils to get an idea of the behavior of the coatings under the most adverse conditions.

The figures in column 4 indicated roughly that the per cent "corroded" increases as the soils become more corrosive. The total number of inspections, 16, for soils which are very bad is insufficient to give an indicative per cent "corroded" figure. This figure, which is also greatly affected by the age factor, is consequently out of line with the preceding four.

The fact that the per cent "corroded" is related to the soil quality, in spite of the decreasing average age of the coatings inspected and the medley of coating types in each soil quality, is interesting. The importance of a knowledge of the corrosiveness of the soils is thus obvious.

**Average Ages**

The average ages (column 5, Table 4) for the various soil qualities show an expected trend. It is clear that in relatively noncorrosive soils no need arises for replacing ineffectual coatings; whereas in very corrosive soils, coatings which are inadequate are constantly being replaced. There is, therefore, little chance of finding old coatings in highly corrosive soils.

It is regrettable that there are no data on soil quality for so large a number of inspections. Ordinarily, in examining coatings on a new line in virgin territory, there is little information available with which to judge the corrosiveness of the soil.

Table 5 gives the distribution of the coating inspections according to age limits. It will be observed that the data on two divisions of coating inspections have been compiled separately. The reason for this division will be explained later. Division 1 includes the coating inspections of Groups 3, 4, 5, 6 and 7, and division 2 includes coating inspections of Groups 8, 9 and 10.

Column 1 of Table 5 gives the age limits within which the number of coating inspections are included; column 2 the total number of inspections within each age limit, and column 3 the per cent of these which showed corrosion. Column 4 gives the total number of inspections which have been included in division 1, and column 5 the per cent of these which showed corrosion.

Columns 6 and 7 are similar to columns 4 and 5. Column 8 gives the "average soil quality" for each age limit. No per cent "corroded" figures have been included in the table where the total number of inspections is less than 10.

It will be noted in column 3 that the per cent "corroded" increases rapidly with the age. It must be remembered that soil quality and type of coating have due effect upon the per cent "corroded" figures, and that these figures do not represent the probability of finding any coating protecting the pipe against corrosion at any age. The apparent discrepancy in the per cent "corroded" figure for two to three years is ironed out by separating the inspections into the two divisions.

**Divisions**

Division 1 is composed of all coatings, other than those on exposed lines or included in the heterogeneous Group 2, which are not reinforced with fabrics of the roofing felt type. Division 2 includes only coatings reinforced with fabric of the roofing felt type. As has been previously pointed out, coatings involving such fabrics which have not been cemented to the pipe are not included in Groups 8 9, and 10.

Columns 5 and 7 show a more or less regular and rapid increase in the per cent "corroded" figures with increasing age, when type of coating is taken into consideration by separating the inspections into the two divisions.

With the exceptions of the age limits three to four years and five to six years, the corrosiveness of the soils encountered decreases with an increase in the age limits of the coatings. This relation between age and soil quality was pointed out in considering Table 4.

In Tables 3, 4 and 5 the per cent of the coatings inspected which allowed the pipe to corrode has been shown to be related to certain types of coatings, the ages of the coatings, and the qualities of the soils in which the coatings were examined. While the data are too meager to establish a mathematical relation between the various factors considered, trends have been pointed out, and the dependence of the per cent "corroded" figure upon the type of coating, age, and soil quality has been established. This dependence seems obvious. However, the rapidity with which the breakdown of the coating occurs and the slight effect of certain types of coatings in preventing corrosion is surprising. Age appears to be the most important factor influencing the per cent "corroded" figure with type of coating of secondary importance, excepting for two broad divisions. In attempting to evaluate the behavior of a coating with respect to its ability to prevent corrosive attack on the pipe, the quality of the soil must be taken into consideration.

**Protective Value**

Until such time as a quantitative expression for the protective value of a coating is available, no accurate conclusions can be reached from field inspections as to the prolongation in life afforded a pipe by the application of a particular coating. The inability of a coating to prevent corrosive attack on the pipe in a very corrosive soil does not preclude its possible use in less corrosive soils, even though the disruptive effects of the corrosive and noncorrosive soils may be precisely the same.

It is truly surprising that the breakdown of almost all coatings is so rapid. This fact has led to the segregation of the coating groups into two divisions, the contents of which have been previously described. With the exception of one make of enamel, almost all the inspections which were made on coatings less than two years old and under relatively favorable conditions, the breakdown of the coatings in Division 1 has been quite rapid. The behavior of this one enamel, however, is not sufficiently outstanding to exclude it from Division 1 in comparing this division with Division 2.

Tables 3 and 5 show the difference in behavior of the coatings in the two divisions. However, the figures do not

(Continued on Page 152)

**TABLE 4—RELATION OF SOIL QUALITY TO PER CENT OF INSPECTIONS SHOWING CORROSION**

| Soil quality | Total No. | Per cent total | Per cent corroded | Aver. age |
|---|---|---|---|---|
| Excellent ... | 100 | 30.4 | 66.0 | 5.82 |
| Good ..... | 54 | 16.4 | 70.4 | 3.02 |
| Fair ..... | 93 | 28.2 | 71.0 | 2.25 |
| Bad ..... | 67 | 20.4 | 89.6 | 2.00 |
| Very bad ... | 15 | 4.6 | 73.4 | 1.01 |
| Total ..... | 329 | 100.0 | 73.3 | ... |
| No data .. | 101 | ... | 58.3 | ... |
| Total ..... | 430 | ... | 72.1 | ... |

**TABLE 3—COMPOSITE DATA ON COATING INSPECTIONS BY GROUP***

| Group— | No. inspections | Avge. soil quality† | Total avge. age | Per cent corroded | Avge. age corroded |
|---|---|---|---|---|---|
| 1. Coatings on exposed lines | 7 | ... | 2.43 | 28.6 | 1.17 |
| 2. Miscellaneous treatments | 23 | 10.3 | 1.29 | 43.5 | 1.78 |
| 3. Asphalt-emulsion treatments | 18 | 12.8 | 1.23 | 88.9 | 1.21 |
| 4. Grease treatments | 32 | 10.6 | 2.36 | 90.6 | 2.47 |
| 5. Enamels | 157 | 19.4 | 2.47 | 71.4 | 3.00 |
| 6. Unreinforced bituminous materials applied hot | 51 | 21.3 | 5.99 | 100.0 | 5.99 |
| 7. Paints and cutback bituminous materials | 54 | 15.7 | 1.60 | 94.5 | 1.65 |
| 8. Single ply felt wrapped treatments | 37 | 21.2 | 6.06 | 64.8 | 7.16 |
| 9. Double ply felt wrapped treatments | 43 | 17.9 | 3.00 | 46.5 | 3.53 |
| 10. Triple ply felt wrapped treatments | 15 | 14.1 | 1.82 | 6.7 | 2.42 |
| Total and averages | 437 | 17.8 | 2.99 | 72.3 | 3.42 |

*Twelve doubtful inspections not included. †Exclusive of inspections for which there are no data on soil quality.

**TABLE 5—RELATION OF COATINGS TO PER CENT OF INSPECTIONS SHOWING CORROSION***

| Age limit in years | Total No. | Per cent corroded | Division 1 Total No. | Division 1 Per cent corroded | Division 2 Total No. | Division 2 Per cent corroded | Average soil quality |
|---|---|---|---|---|---|---|---|
| 0- 1 | 91 | 55.0 | 70 | 61.4 | 3 | ... | 14.8 |
| 1- 2 | 166 | 71.7 | 134 | 81.4 | 29 | 24.1 | 16.9 |
| 2- 3 | 65 | 69.2 | 37 | 97.3 | 28 | 32.2 | 18.6 |
| 3- 4 | 17 | 94.2 | 11 | 100.0 | 5 | ... | 15.9 |
| 4- 5 | 20 | 90.0 | 9 | ... | 11 | 81.8 | 19.1 |
| 5- 6 | 19 | 89.5 | 16 | 100.0 | 3 | ... | 14.6 |
| 6-18 | 52 | 94.2 | 36 | 100.0 | 15 | 80.0 | 24.9 |
| Total | 430 | | 313 | | 94 | | |

*Does not include 12 doubtful cases, nor seven numbers of Group 1.

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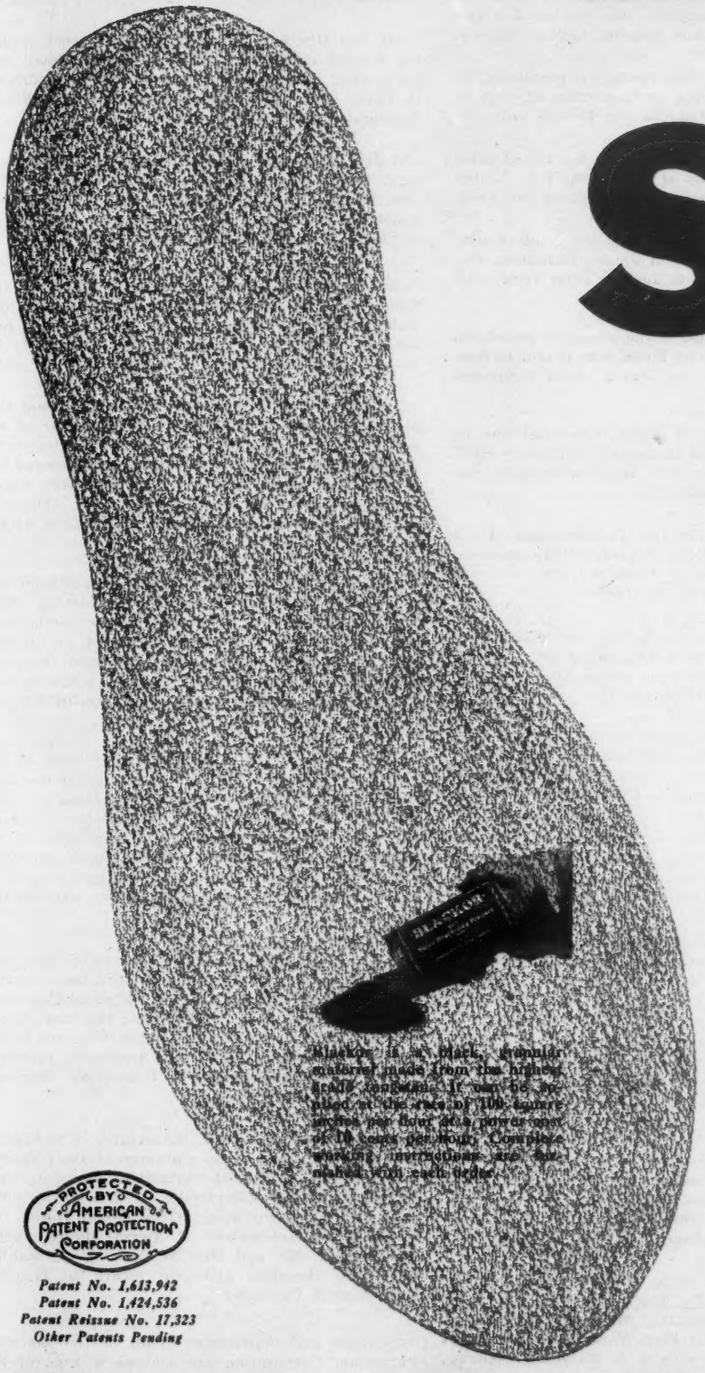

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**Warner Clark**

Warner Clark, division manager for the California Company, a subsidiary of the Standard Oil Company of California, started in the oil industry sorting rivets, boilermaking, roughnecking and doing odd jobs about the field until he worked his way up to drilling, which he says was one of the proud periods of his life. Then he forsook the fields to enter college and learn the technical side of the industry.

Mr. Clark was born in Modoc County, California, in 1886. He attended the Modoc County High School and then went to work for the Standard Oil Company of California in 1910, remaining with that company until he left the fields and matriculated at the University of California. He worked his way through that institution and graduated in 1916.

When the United States entered the World War Mr. Clark enlisted at the training camp in the Presidio, San Francisco, from which place he was transferred to Camp Fremont for further training. He was commissioned a first lieutenant in the Twelfth Infantry, serving from 1917 to 1919 when he was discharged.

Going back to field work, Mr. Clark was made division superintendent of the California Company, located in the Santa Maria Field, California. From there he was sent to Ecuador in 1922 and he remained there until 1927. After coming back to the United States he was sent to Colorado, Tex., in 1928, as manager of the California Company for the district comprising Oklahoma, Texas and New Mexico. When the company moved its division offices from Colorado, Tex., to Dallas, Tex., Mr. Clark moved to the latter place, where he is now division manager.

# PERSONAL PARAGRAPHS

Lee C. Moore, of Tulsa, is in New York on a business mission.

* * *

W. C. Fyl, well known geologist of Kentucky has accepted a position with Petroleum Exploration.

* * *

L. W. Young, of Pittsburgh, Pa., president of the South Penn Oil Company, was in Chicago last week.

* * *

Thomas B. Greene, Lima, Ohio, general manager of the Buckeye Pipe Line Company, was a Pittsburgh, Pa., visitor recently.

* * *

Jack Jones, of the firm of Jones and Quinn, rig builders, of Calgary, Alberta, will spent the winter at his former home in Wales.

Frank B. Clark, of Los Angeles, Calif., president of the Oil Well Equipment Corporation, spent several days in Tulsa with F. E. Bernsen.

* * *

M. E. Young, of Casper, Wyo., for several years manager of the New York Oil Company, but now engaged in private business, is in Chicago.

* * *

H. Foster Bain, secretary of the American Institute of Mining and Metallurgical Engineers, has arrived in Los Angeles, Calif., for a short stay.

* * *

Frank Wagar, advertising manager of the Tidewater Oil Sales Corporation, has concluded a two weeks' survey of the Los Angeles, Calif., territory.

* * *

E. H. Cunningham Craig, consulting petroleum geologist, has been making an inspection of various oil fields in Alberta, Canada, for British interests.

* * *

Jack Doyle, scout and land man for the Humble Oil & Refining Company at Beaumont, Tex., visited friends in the Shreveport division during the week.

* * *

Francis E. Powell, chairman of the Anglo-American Oil Company, Ltd., and James Hamilton, vice chairman, have arrived in London after their visit to the United States.

* * *

R. C. Beckstrom, dean of the school of petroleum engineering, University of Tulsa, who is now in Russia, has left Moscow for Baku, much impressed with what he had seen.

* * *

William D. Moorer, of Tulsa, vice chairman of the American Society of Mechanical Engineers, Mid-Continent section, is in New York on business connected with the organization.

* * *

Fred Funk, scout for the Transcontinental Oil Company, and Miss Ruth Parker, of Morgantown, W. Va., were married at Lubbock, Tex., and are now at home at Roswell, N. Mex.

* * *

Forrest M. Towl, New York City, president of the Southern Group of Pipe Lines, and Allan T. Towl, general manager of the same group, attended a directors' meeting in Pittsburgh, Pa.

* * *

C. R. Minor, vice president of the Gulf Refining Company; M. O. Rife, superintendent of production; and R. T. Hazzard, assistant to the vice president, were recent visitors to Chicago.

* * *

Berry Carrell, of the engineering staff of the Gulf Refining Company in the Shreveport division for the past several years, has joined the Arkansas Natural Gas Corporation in similar capacity.

* * *

Mr. and Mrs. R. E. Mossman have returned to Casper, Wyo., from their honeymoon trip through the Pacific Coast states. Mr. Mossman is superintendent of The Texas Company's refinery at Casper

* * *

Eugene Holman, formerly chief geologist of the Humble Oil & Refining Company, Houston, Tex., but lately of the Standard Oil Company of New Jersey at New York, has been one of a party visiting in Texas.

* * *

Carey P. Butcher, formerly district geologist for the Continental Oil Company at San Angelo, Tex., has returned from Ada, Okla., where he and his wife have been for some time, and will do consulting work at San Angelo.

* * *

R. Ogarrio, of New York City, vice president in charge of production for The Texas Company, has been making a business trip to Mexico and South Texas, stopping over in Fort Worth, to discuss the West Texas situation with L. E. Barrows, head of the Fort Worth office for the company.

* * *

J. B. Grey, for the past two years managing director of the Atlantic Union Oil Company, Ltd., distributing subsidiary in Australia and New Zealand for the Atlantic Refining Company and Union Oil Company of California, has been appointed manager of refined oil exports of the Union Oil Company. He recently arrived in Los Angeles, Calif., from the Antipodes where he will maintain offices at the headquarters of the company.

E. G. Woodruff, consulting geologist, has returned to Tulsa after a professional trip to the Gulf Coast fields.

* * *

Joseph B. Elam, secretary of the Louisiana-Arkansas division of the Mid-Continent Oil and Gas Association, spent the week in Chicago.

* * *

Mr. and Mrs. Kenneth J. McCann, of Tulsa, left recently for Oranjuestadt, Aruba, Dutch West Indies, where Mr. McCann will be connected with the Pan American Petroleum Corporation as senior accountant.

* * *

Mr. and Mrs. Bruce Dunlop, who have been spending several months in Petrolia, Ontario, have left for a visit in southern California before returning to Peru, where Mr. Dunlop is employed with the International Petroleum Company.

* * *

George Johnston, who spent many years in foreign fields, has retired from active service as field superintendent of the northern area in charge of Ambrosio, La Rosa and the Punta Benitez Fields of the Lago Petroleum Corporation.

* * *

Arthur D. Small, formerly with the Richfield Oil Company of California and then in Tulsa with the Tidal Pipe Line and Refining Companies, has left for the Dutch East Indies in the service of the Standard Oil Company of New Jersey.

* * *

Maj. Frederick R. Burnham, of the Burnham Exploration Company, an author and explorer of renown, has just completed a trip around the world during which time he visited the scene of some of his most notable exploits, particularly that area which he covered as a soldier in the Boer War. The major is expected back at his Los Angeles office within the next two weeks.

* * *

Claude C. Brown, natural gas administrator for the California State Railroad Commission since July, 1927, has been appointed by the commission to succeed Charles S. Grunsky, resigned, as gas and electrical engineer. Mr. Brown will head the commission's engineering department and will also continue to act as natural gas administrator for the present.

* * *

L. F. (Dock) McGee, formerly chief scout of the Pure Oil Company in Tulsa, has charge of the land department at the new office in Oklahoma City for the same company. D. A. Green will be in charge of the geological department. The new office is located in the Tradesmens National Bank Building, and will handle the Pure Oil Company's properties in the southern, central, and western part of the State.

* * *

O. H. White, state inspector of oil and gas wells in Michigan for the past nine months, has resigned to take a position with the Dow Chemical Company, of Midland, Mich. Mr. White, who has had charge of conservation work in the Mount Pleasant Field, will be succeeded by Frank Anderson, formerly with the Halliburton Oil Well Cementing Company, of Duncan, Okla.

* * *

Mr. and Mrs. George J. Wanstrath, of St. Louis, Mo., have announced the marriage of their daughter, Minnette, to Ira McFarland of Houston, Tex. Mr. McFarland is comptroller of The Texas Company and makes his home at the Lamar Hotel. The wedding was solemnized at Sierra Madre, Calif., November 2. Mr. and Mrs. McFarland are making a trip to Honolulu and will return to Houston some time in December.

* * *

Officials and department heads of the Amerada Petroleum Corporation are making a tour of the West Texas oil fields. E. DeGoyler, of New York City, chairman of the board of the Amerada corporation, and A. Jacobson of New York City, president of the Amerada Petroleum Corporation, were accompanied by A. M. Blow of Tulsa, vice president and general manager of the Amerada Petroleum Corporation; H. G. Officer, superintendent of the land department; A. R. Denison of Fort Worth, geologist for Texas; and B. F. Allen, district geologist for New Mexico, with headquarters at Roswell.

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## KANSAS FIELDS

(Continued from Page 52)

tion 27-23-11, is a rig under construction. Amerada Petroleum Corp. and Dixie Oil Co. made location for No. 4 Ellis, SE cor. NW NW, Section 27-23-11. Mendenhall and others' No. 2 Grossart, CSL NW NW, Section 9-25-13, is underreaming 8-inch casing at 1,136 feet. Derby Oil Co.'s No. 1 Walter, NE cor. NW NW, Section 21-22-13, has been abandoned at 1,940 feet. Empire Oil & Refining Co.'s No. 7 Edwards "B," NE cor. SE SE, Section 21-23-11, made 195 bbls. in sand 1,873-1,947 feet. E. W. Marland Inc.'s No. 1 Moore "C," CWL SE SW, Section 24-24-9, has been abandoned at 2,290 feet. The Prairie Oil & Gas Co.'s No. 1 Gilbert, SE cor. NW, Section 4-24-12, is a dry hole at 1,798 feet. Tulsa Oil Co.'s No. 1 Beauchat, NE cor. SE SW, Section 6-24-12, is dry and abandoned at 1,814 feet. Sheedy and others' No. 3 Sharp, CEL W half NW NW, Section 5-24-13, made 40 bbls. in sand 1,617-30 feet. No. 4 Sharp, SW cor. NE NW, Section 5-24-13, has been completed for 300 bbls. in sand 1,627-36 feet. Empire Oil & Refining Co.'s No. 5 Hoggart, C SE NW, Section 9-25-13, made a 25-bbl. well in sand 1,533-47 feet. No. 6 Hoggart, SWL SE NW, Section 9-25-13, has been completed for 15 bbls. in sand 1,460-68 feet.

**Ellis County**

Phillips Petroleum Co.'s No. 2 Shutts, SW cor. NE, Section 5-12-17w, made 390 bbls. in sand 3,630-38 feet.

**Lyon County**

Sheedy and others' No. 1 Williams, SE cor. SW SW, Section 18-21-10, is dry and abandoned at 2,390 feet. No. 4 Hughes, SW cor. NW SW, Section 19-21-10, is producing 150 bbls. from sand 2,197-2,244 feet. Gordon Staats and others' No. 1 Bradfield, SE cor., Section 1-21-11, has been abandoned at 2,103 feet.

**McPherson County**

Empire Oil & Refining Co.'s No. 1 Voshell, NE cor. SE NE, Section 9-21-3w, made 615 bbls. from Wilcox sand 3,306-09 feet.

**Marion County**

Empire Oil & Refining Co. made location for No. 1 Block, NE cor. NW SW, Section 27-19-2.

**Morris County**

Loomis and others' No. 1 Shrader, C SE SW, Section 15-16-7, is dry and abandoned at 250 feet.

**Russell County**

Gilbreath, Krueger and others made location for No. 1 Bratton, C NE, Section 33-11-13w.

**Sedgwick County**

The Prairie Oil & Gas Co. and T. B. Slick's No. 2 Bright, SE cor. SW NW, Section 1-26-1w, Valley Center Pool, made 220 bbls. from sand 3,361-67 feet. Shell Petroleum Corp.'s No. 5 Fischer, NW cor. SW SE, Section 15-26-2, made 60 bbls. in top of chat 2,905 feet, total depth 2,909 feet. No. 2 Lygrisse, NE cor., Section 15-26-2, Greenwich Pool, was completed for 632 bbls. in chat 2,870-72 feet. Wentz Oil Corp. and others' No. 1 Alliston, NE cor. NW, Section 24-26-2, is dry and abandoned at 3,367 feet. White Eagle Oil & Refining Co.'s No. 3 Robbins, SW cor. NE SE, Section 20-28-1, has been abandoned at 3,135 feet. George Dickey's No. 1 Robbins, NE cor. SE SE, Section 20-28-1, made 40 bbls. in sand 3,091-3,115 feet.

**Sumner County**

Blankenship Petroleum Co. made location for No. 1 Rifle, NW cor. SW, Section 2-34-4w.

**Woodson County**

Elbar Oil Co.'s No. 1 Bolus, NE cor. NW, Section 31-23-14, has been abandoned at 1,751 feet.

## CANADIAN FIELDS

(Continued from Page 61)

duction is around 5,000,000 feet a day, with potential crude naphtha recovery of 100 bbls. East Crest's No. 2, LSD 4, same section, is drilling in the Dalhousie sands after mudding off a strong gas flow at 3,208 feet.

Mayland Oil Co.'s No. 1, LSD 10, Section 17-19-2w5, being drilled by Imperial Oil, Ltd., is reported cleaning out and testing production 529 feet in the lime at 5,970 feet. It looks like a rather small well. A heavy burst of wet gas met in the upper part of the lime some weeks ago, blew out after 10 minutes.

Including these two wells, a recent summary of Turner Valley operations shows 11 wells drilling or cemented in the lime, with three or four other deep lime producers cleaning and deepening.

**Imperial Operations**

Royalite Oil Co.'s No. 12, LSD 3, Section 13-20-3w5, in the central section, got the lime at 5,409 feet and is underreaming and cleaning out at 5,417 feet preparatory to cementing. Location is about 900 feet north of Illinois-Alberta Oils' No. 1 producer. No. 16, LSD 2, Section 12-20-3w5, is at 5,839 feet and drilling. No. 21, LSD 1, Section 13-20-3w5, is drilling at 4,718 feet, after getting a little gas in the lime. No. 23, NW Section 31-19-2w5, is drilling at 5,080 feet. No. 19, LSD 6, Section 6-20-2w5, is at 4,623 feet and rigging up rotary. Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, is making up drill pipe preparatory to cleaning out and restoring production. Dalhousie's No. 7, LSD 11, same section, is at 4,457 feet.

Royalite Oil Co.'s No. 24, located on Calgary & Edmonton Corp. acreage, in LSD 3, Section 9-19-2w5, in the south end of the field, is drilling below 70 feet. In the central field, Royalite Oil Co.'s No. 14, LSD 4, Section 7-20-2w5, is deepening with diamond drill at 3,688 feet.

In the South Turner Valley, interest among Imperial tests now centers in Foothills Oil & Gas Co.'s No. 3 (Southwest Petroleums), LSD 16, Section 8-19-2w5, drilling 185 feet in the lime at 5,663 feet.

**South Turner Valley**

In the South Turner Valley area, further new work is in prospect as a result of the Merland Oil Co. strike. Fairmont-Oils' No. 1 has been located in LSD 4, Section 20-19-2w5, and has derrick up; the acreage is leased from Alberta Pacific Consolidated Oils, Ltd., on 35 per cent royalty and is close to the Home producers. Madison Oils, Ltd., of Calgary, which has a test drilling in the border fields and a location in the north Turner Valley, has secured 120 acres in the extreme south near Merland's No. 1 producer, and may drill a test. Anaconda Oil Co., which has a test drilling in the north Turner Valley, has made tentative loaction for its No. 2 in the south end.

Calmont Oils' Nos. 8 and 10 are rigging up and Nos. 11 and 12 are working on cellar.

Freehold Oil Corp.'s No. 3, about 200 feet northeast of No. 2, has cellar dug and is waiting for derrick timbers.

Mercury Oils' No. 3, LSD 2, Section 4-19-2w5, got the Dalhousie sands at 4,650 feet with strong shows of oil and gas. Miracle Oils' No. 1, LSD 11, is drilling at 3,560 feet after getting a show of oil at the Dakota-Kootenay contact. Vanberta Oils' No. 2, LSD 5, Section 34-18-2w5, is building derrick. Askalta Oils' No. 1, LSD 16, Section 5-19-2w5, is planning to spud in this month.

**Central Turner Valley**

In the central Turner Valley, Freeman-Lundy Syndicate's No. 2 is reported building derrick in LSD 5, Section 3-19-2w5, in the south end of the field. Okalta's No. 3, LSD 9, is at 2,931 feet, drilling and bailing some light crude from the McDougall sand.

British Dominion Oil Development Corp.'s No. 2, LSD 6, Section 12-20-3w5, is drilling around 36 feet in the lime at 5,100 feet, and taking light crude production from the McDougall, Home and Dalhousie sands. With completion of the water line, three shifts are being put on. Widney Petroleums' No. 1, LSD 11, Section 12-20-3w5, is pumping around 110 bbls. of light crude daily.

**North Turner Valley**

In the North Turner Valley area, Model Oils' No. 1, LSD 8, Section 22-20-3w-5, is drilling in a brown sandstone at 5,464 feet and apparently getting close to the Madison lime. Anaconda Oil Co.'s 1, LSD 4, Section 14-19-3w5, has derrick up. Cartier Oils' No. 1, LSD 10, Section 5-20-3w5, has derrick reported drilling at 1,941 feet, after getting a gas flow estimated 1,000,000 feet a day with traces of oil on entering the Dakota formation at 1,760. The Anaconda company will likely drill its No. 2 in the South Turner Valley in LSD 5, Section 34-19-2w5, offsetting Merland's No. 1 producer.

On the New Black Diamond structure, Weymarn Petroleums' No. 1, LSD 1, Section 3-20-3w5, is drilling at 3,206 feet. The test has still about 400 feet to go before reaching the horizon at which Outwest Petroleums' No. 1 shut down after encountering a fault. It is understood the Weymarn company intends to drill through the fault if possible.

**Waite Valley Area**

In the Waite Valley, Richfield Petroleums' No. 1, NW Section 35-20-3w5, is drilling 25 feet in the Dakota formation at 3,495 feet depth. This is the deepest test on the structure. Bonanza Oils' No. 1, LSD 4, Section 5-20-3w5, has derrick up. On the south end, Sharron Oils' No. 1, LSD 7, Section 5-20-3w5, has derrick up and will spud in about December 15. Harland Petroleums' No. 1, LSD 14, Section 6-20-3w5, has derrick and camp finished.

On the Highwood-Sinclair structure, Banner Oils' No. 1, LSD 6, Section 34-17-3w5, is drilling at 403 feet with small shows of oil.

On the Morley Reserve, Wabash Oils' No. 1 is at 2,979 feet and drilling with additional gas production in the Devonian lime. Norcon Oil Co.'s No. 1 is working on casing at 1,593 feet and has some gas.

On the Herron structure, Herron Petroleums' No. 1, NW Section 13-22-6w5, is drilling at 950 feet with about 1,000,000 feet of gas.

Source-Rock Petroleum, Ltd., has been incorporated at Calgary to develop 2,120 acres on the Wildcat Creek section of the Watson structure. No. 1 test is scheduled to spud in next spring. Sisterville Oil Co. has been incorporated under Dominion charter at Calgary to develop acreage between the Raven Oils and H. L. Doherty acreage on the same structure, drilling to start as soon as weather conditions permit.

**Border Operations**

In the border area of southern Alberta, Vanalta Oils' No. 2, LSD 3, Section 4-1-16w4, has spudded in. Vanalta's No. 1 on production for about 30 days has averaged 90 bbls. a day. The crude is reported to bring $2 a barrel, being hauled to the refinery at Coutts, about 6 miles. Gas production will be taken by E. B. Collidge and associates of the Consumers Gas Co., who are unloading material for a gas line to Coutts. If possible, the gas will be delivered to Sweetgrass, on the Montana side of the boundary. It is expected crude production will be increased as soon as packer is inserted to separate the oil and gas sands. According to the officers of the company, Vanalta's No. 1 cost around $32,000 to drill. Fairmont Oils' No. 1 has been located in Section 9-1-16w4.

In the Skiff Field, Dauntless Oils' No. 1, LSD 9, Section 36-6-15w4, is being shot at 3,260 feet.

Teapot Dome Oils, Ltd., which has several wells and is doing additional drilling in Wyoming, is starting work on its Alberta acreage. No. 1 test will be in the new Mowmac Field 18 miles west of Lethbridge in NE Section 31-9-3w4.

In the Cardston district a test will be drilled by a company organized under Dominion charter, handled by a syndicate including Guy Weadick of Calgary, Tom Weadick and C. L. Woods of Parco, and R. G. Taylor of Denver. The company holds 12,000 acres in southern Alberta which have been geologized by Dr. F. Hinze.

In the Lomond district, Hudson's Bay Oil & Gas Co.'s Lomond No. 2, Section 23-17-18w4, is drilling at 290 feet.

North of Suffield, the Ontario-Alberta Development Co.'s No. 1, Township 17-8w4, is reported cemented 3 feet in a hard white limestone at 3,224 feet. Some traces of heavy crude have been brought up.

**Wainwright Field**

In the Wainwright Field, east central Alberta, Wainwell Oils' No. 1, LSD 9, Section 36-44-7w4, after bringing back some production from the upper sand at 2,072 is experimenting to further increase production.

Oil Selections' No. 1, LSD 13, Section 2-46-7w4, Shewchuk farm, has derrick up to spud in about December 15. Location is on the main fold of the Wainwright Field across the Battle River, and geologists claim the structure rises steadily in this direction, which would indicate this test is higher on structure than any yet drilled in the Wainwright Field.

Wainwright Petroleums' No. 1, LSD 6, Section 30-45-6w4, has cored an oil sand at 2,246 feet and is preparing to test production. Peninsular Petroleums' No. 1, LSD 16, Section 30-45-6w4, is rigging up.

**Ribstone Structure**

On the Ribstone structure, eastern Alberta, four tests are actually drilling, with prospects of one completion this month. Meridian Oils' No. 2, LSD 1, Section 16-45-1w4, struck a heavy gas flow around 1,700 feet, apparently corresponding to the gas encountered in Meridian's No. 1 at 1,833 feet. The drill is now at 1,726 feet. Oxville Oil & Gas Co.'s No. 1, LSD 15, Section 10-46-2w4, is drilling at 1,573 feet after encountering several flows of gas, aggregating around 3,000,000 feet. The first gas show was at 1,199 feet.

**Manitoba Test**

In the Riding Mountain district, near Dauphin, Manitoba, Dauphin Oil Syndicate's No. 1 is reported drilling close to 1,000 feet. This is stated to be the deepest test yet drilled in the Dauphin area where oil seepages have been frequently reported.

**Ontario Fields**

In Brant County, Ontario, Petrol Oil & Gas Co.'s No. 16 on the Six Nations Indian Reserve near Brantford has finished a shallow test with a measured production of 92,160 feet per day. Two additional tests are being started. Production is taken by the Dominion Natural Gas Co.

In the Dover Field, Kent County, Ajax Oil & Gas Co.'s No. 6 is reported to have discontinued drilling in the Trenton limestone at 3,200 feet without a show. A shot will probably be tried. Olga Oil & Gas Co.'s No. 1, 1,700 feet southeast of Ajax's No. 6, at the same depth, got a fair gas show and may be a small commercial producer.

In Halton County, Burlington Oil Syndicate, headed by F. A. Ogletree, is drilling on acreage in Nelson Township. The drill encountered gas in the gray Utica shales at 160 feet and a larger flow at 360 and is beeing deepened for possible commercial production.

## ROCKY MOUNTAIN AREA

(Continued from Page 61)

and lowering casing. Total depth is 5,570 feet and the special 3¾-inch is at 5,317 feet. The Cisco Springs Syndicate's No. 1 Moss, SE SW Section 9-20-23, Grand County, which has been delayed for some time at 1,985 feet fishing for bit has been unable to recover same and has commenced to sidetrack. The hole is supposed to be bottomed just above the Dakota sandstone. W. H. H. Cranmer is in charge of this operation. The Diamond Oil Co.'s No. 4, SE NW Section 16-8-5, Utah County, is shut down at 1,365 feet for the 8¼-inch.

**COLORADO**

H. W. Allen and associates are moving a rig to the Rattlesnake Butte structure, northeast of Wasenburg, in Huerfano County, Colorado, for a 2,000-foot test. The location is generally north of the Cucharas River and between the river and the Denver & Rio Grande Western railroad tracks. Some of the geologists think favorable of the area as there is a well defined structure there which is

superimposed on the high between the Trinidad Basin and the Denver Basin.

Any wildcat drilled in that territory at this time will be watched with interest as it may throw some light on a question that has puzzled the oil men and held back prospecting. Far to the east of this well, in Prowers County, the wildcats have shown deep sea conditions with suitable reservoir rock but the absence of source material, while to the west the marine source material has been in evidence but not the reservoir rock. Somewhere in between, it is believed, the old shore line where favorable conditions exist, will be found.

In Fremont County, in which is located the old Florence Pool and the newer Canno City extension, there is evidence of increased activity after a lull. The Continental Oil Co., the principal operator, is drilling two wells. Its No. 1 Givoanni, SW NW Section 1-19-70, is drilling at 1,230 feet, and its No. 2 Empire Zinc, SE NW Section 8-19-70, is drilling at 80 feet. Hammon & Beltramo's No. 1 Zontine, SW cor. Section 2-19-70, was drilled to 2,525 feet and plugged back to 1,625 feet and completed as a 10-bbl. well. Dickason & Brewer's No. 1 DeWeese, SE SE Section 3-19-70, was dry and abandoned at 2,180 feet. The Waterville Oil Co.'s No. 1 State, SE cor. NW Section 16-18-69, north of the old operation, a test to the Pennsylvanian, is spudding at 106 feet.

**Arapahoe County**

In Arapahoe County, near Denver, the McDeb Drilling Co.'s No. 1 Fitzsimmons, NE Section 7-4s-66, which has been making good progress the past month, is drilling at 4,607 feet in the Benton shale with the 6¼-inch at 4,593 feet. The Dakota is expected at around 5,000 feet.

In Larimer County, the Warner-Mosher Drilling Co.'s No. 1 Reed, SW NW Section 28-4n-69, Berthoud Dome, is drilling at 1,280 feet, and the Standard Oil Co. of Colorado's No. 1 Hertha, NW cor. Section 21-4n-69, is shut down at 2,012 feet waiting for the 10-inch. Stanley Barrows' No. 1 Barrows, NW cor. SE Section 7-11n-68, Round Butte structure, is bottomed at 2,195 feet in the base of the Morrison, and underreaming the 5⅞-inch. The Continental Oil Co.'s No. 4 Scott, NE SE Section 6-9n-68, Wellington Dome, is drilling at 4,410 feet in the Muddy sand.

In Morgan County, the Badger Creek Oil & Gas Co.'s No. 1 Kent, SW cor. Section 2-2n-57, Badger Creek Dome, is shut down indefinitely at 750 feet. There is 70 feet of 20-inch casing in the hole. The tools which were lost more than a year ago, were recovered recently and the hole is reported to be in good condition for making a test if suitable arrangements are made.

In Weld County, the Platte Valley Petroleum Co.'s No. 1 Patterson, SW SW Section 24-6n-61, Greasewood Dome, is drilling at 4,666 feet in the Benton shale and carrying the 4¾-inch. There was another show of gas at 4,645-65 feet. This well was spudded in May, 1926, and has a varied course, but for some time it has been drilling ahead slowly. It is considered an important test as it has had several good shows and there is a general desire to see it completed to the Dakota which is expected within the next few hundred feet.

**Huerfano County**

In Huerfano County in the southern part of the State, the Parker Club, Inc.'s No. 1 Fee, Section 4-28s-68, Badito-Alamo structure, is shut down at 3,890 feet to run and cement the 5⅞-inch pipe It has been carrying this size string for some time waiting for a good seat upon which to set it to make a water shutoff. It has been making considerable gas through the water and the bottom is supposed to be about 50 feet off the Dakota.

The Poudre River Oil Co.'s No. 1 Warren, NE cor. Section 33-8n-69, northwest of Fort Collins in Larimer County, is bottomed at 3,599 feet in the Pennsylvanian and fishing for tools. No new hole has been made for about a year though fishing has continued steadily.

In Jackson County, the Midwest Refining Co.'s No. 21-X Rich, SW NW Section 9-6n-80, Buffalo Creek, is bottomed at 3,365 feet and burying water lines and the Producers & Refiners' No. 1 Hendershot, Section 2-6n-81, Pole Mountain, is drilling at 3,445 feet in gray shale.

In Routt County, the Texas Production Co.'s No. 3 Carstarphen, SW NE NW Section 5-6n-86, Tow Creek, is drilling at 3,583 feet with 1,700 feet of oil in the hole. This well offsets a producer completed in 1928 at 3,435 feet with an initial production of 80 bbls. and is half a mile north of No. 1 McNeill, a dry hole. This dry hole is between producers on the north and south.

In Moffat County, the Texas Production Co.'s No. 12 Knowlton, SW SE Section 33-5n-91, Moffat Dome, is thawing ground and digging slush-pit. Thomas McLaughlin and others' No. 1 Williams, NW SW Section 2-3n-92, a test in the fault block between the Iles and Thornburg Domes, is bottomed at 4,280 feet (corrected) in the black lime above the Sundance and straightreaming to set the 4¾-inch on bottom. It is supposed to be only a few feet off the Sundance.

**Speculation Over Well**

If the theory held by some geologists that the oil in that area comes through fractures from lower horizons is correct, this well has a chance of coming in as a good producer, but if the other theory that the oil forms in the shales is the right one, the prospects are not so promising. In any event, the fate of this well will have an important bearing on additional prospecting in that region. The Texas Production Co.'s No. 1 Berlin, SW NE Section 19-12n-100, Bartram Dome, is drilling at 2,105 feet below two big gas horizons which were mudded off. The Mountain Fuel Supply Co.'s No. 2 State, is a corrected location being 2,990 feet from the south line and 660 feet from the east line, Tract 37-12n-100, Hiawatha Dome. The rig is up.

In Rio Blanco County, the White Eagle Oil & Refining Co.'s No. 1-A Fordham, NW SW Section 9-2s-96, Piceance Creek Dome, is bottomed at 2,815 feet. The bailer, which was lost when the rig burned about two months ago, has been recovered and the 8¼-inch casing was lifted to replace the top joint which was damaged by the fire. The well is making 6,000,000 feet of gas daily and the gas is said to be very wet. The Texas Production Co.'s No. 1 Potter, C NE SW Section 30-2n-96, White River Dome, is drilling at 5,493 feet.

In Mesa County, the Argo Oil Co.'s No. 1 Peerless, NE cor. Section 23-8s-104, High Line structure, is bottomed at 2,712 feet and fishing for the 8¼-inch casing. The Eureka Oil Co.'s No. 1 Penberthy, SW NE Section 24-1s-1w, Colorado River monocline, is shut down at 860 feet.

**WYOMING**

The Oregon Basin Field in Park County, Wyoming, is showing increase in drilling activity. The Lenco Petroleum Co.'s No. 1 Morris, C NW NE (corrected) Section 29-51-100, in the area between the north and south domes, is a completion in the Embar which was topped at 3,681 feet. The pay was encountered 30 feet in the horizon. While no test has yet been made, it is estimated at 300 bbls. a day. Charles E. Orchard, who some time ago acquired the Producers & Refiners Corp.'s interests in the field, is drilling three wells and is starting a fourth.

The new operation is his No. 2 Frisby, 660 feet west and 220 feet north of the center of Section 32-52-100, upon which rotary derrick is being built. It will be an offset on the west to No. 1 Frisby, which was completed at 3,336 feet in August, 1928, with an initial production of 425 bbls. The Frisby permit was held by Mr. Orchard and associates and drilled by the Producers & Refiners under a sub-lease prior to the recent deal in which Mr. Orchard acquired the Producers & Refiners interest. The other Orchard wells are No. 1 Atherly, SW cor. Section 33-52-100, underreaming the 10-inch at 2,130 feet; No. 1 Owens, SE cor. Section 29-52-100, drilling at 3,190 feet and close to the top of the Embar; and his No. 7 Rue, SW cor. NW Section 28-51-100, which is being rigged with standard tools to drill in. Total depth of last named is 3,570 feet.

**Texas to Announce New Locations**

The Texas Production Co. has made a location in the C NE NW Section 29-51-100, an offset on the west to the Lenco's No. 1 Morris. This company probably will announce several new locations shortly. It supplies crude for the Texas Corp.'s refinery at Cody. The Texas Production Co.'s No. 1 Sonners, NW cor. Section 29-51-100, is drilling at 3,075 feet. It is interesting to note that the two new locations made this week are in the centers of forties. Heretofore 220-foot locations inside of lease lines have been the rule.

The Midwest Refining Co.'s No. 1 Rosenberg, NE cor. Section 26-58-98, Frannie Dome, Park County, a recent completion which started off at 95 bbls. a day and then showed an increase, continues to gain and one day the past week put 750 bbls. into the tank.

In Hot Springs County, the Midwest Refining Co.'s No. 8 Wagonhound, NW SE Section 6-44-98, is bottomed at 1,540 feet and shut down while a water well is being drilled.

In Big Horn County, the Producers & Refiners Corp.'s No. 3 Government, NW NW Section 24-56-98, Garland Dome, joint with the Kinney-Coastal Oil Co., continues to have more than the usual amount of bad luck. It is again fishing for tools at a total depth of 4,234 feet. The well is making about 8,000,000 feet of gas a day. This gas was mudded off to drill deeper, but the bits would not work through the mud and the hole was cleaned. The gas appears to have some crystallizing effect on the cable and when the pressure lifts the tools and then lets them drop, they snap off very easily.

**Fremont County**

In Fremont County, the Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW Section 22-3n-1w, Pilot Butte Dome, has about completed mudding off a big flow of gas at a total depth of 3,367 feet after building rotary derrick. The 8¼-inch will be pulled and rerun before any new hole is made and then will core ahead. The Texas Production Co.'s No. 1 State, SW SW Section 36-34-95, Alkali Butte, is drilling out cement at 130 feet after plugging back to straighten a crooked hole. The Producers & Refiners' No. 9, SW SW Section 15-32-95, Big Sand Draw, is bottomed at 2,978 feet and pulling drill pipe.

In Carbon County, the Midwest Refining Co.'s No. 31 Dutton Creek, SW cor. SE Section 1-18-78, is drilling at 2,580 feet in gray shale, and the Producers & Refiners' No. 2 Mahoney Dome, SE NW Section 34-26-88, is drilling in the red beds at 4,326 feet.

In Lincoln County, the Midwest Refining Co.'s No. 1 Little Grays River, SE Section 25-37-117, is bottomed at 1,720 feet and cleaning out, and the Mountain Oil Corp.'s No. 1 State, Lot 1, Section 36-25-115, Wyoming structure, is rigging up.

In Uinta County, the California Co.'s No. 1 Union Pacific, NE NW Section 7-17-116, is drilling at 4,511 feet.

In Sweetwater County, the Vermillion Oil Co.'s No. 1, SW cor. Section 16-12-99, Hiawatha Dome, is drilling at 1,260 feet and carrying the 12½-inch. This well is located on the northeastern flank and is believed to be far enough down to miss the big gas and make a test for oil.

**MONTANA**

The well of the Mid-Continent Oils, Ltd., drilling on the Buckley Dome near Sweetgrass, 500 feet from the Canadian boundary, made a record for drilling the past week, in nine days work, reaching a depth of 1,400 feet and should complete next week if the speed keeps up. This well is also known as the Cosmos Petroleum Co.'s well.

The preliminary work has been completed for drilling a wildcat on the Browning or Milk River Dome in northwest Montana. This dome lies in Glacier County and a large part of it is on the Blackfoot Reservation. This necessitated a lease from the Indians, just recently completed. The first well will be drilled by the Hannah Porter Oil Co. on Section 22-36-12.

The Pondera Field again brought in an interesting well in the Jewel Oil Co.'s new producer on Section 9-27-4. It is northeast of the Teton well that came in last week around 500 bbls. and the Jewel well is rated good for 75 bbls. daily.

**Pipe Line Runs**

Daily average production for week ending December 7:

| | |
|---|---|
| **WYOMING** | |
| Salt Creek | 28,960 |
| Frannie | 610 |
| Big Muddy | 2,110 |
| Oregon Basin | 4,290 |
| Dutton | 30 |
| Elk Basin | 690 |
| Ferris | 40 |
| Grass Creek | 2,100 |
| Greybull | 10 |
| Hamilton | 860 |
| LaBarge | 2,270 |
| Lance Creek | 170 |
| Lost Soldier | 3,380 |
| Osage | 610 |
| Poison Spider | 760 |
| Rock River | 2,280 |
| Rex Lake | 110 |
| Lander | 440 |
| Simpson Ridge | 60 |
| Teapot Dome | 40 |
| Mule Creek | 610 |
| Total | 50,430 |
| **MONTANA** | |
| Cat Creek | 1,220 |
| Kevin-Sunburst | 6,800 |
| Pondera | 2,420 |
| Lake Basin | 70 |
| Total | 10,512 |
| **COLORADO** | |
| Moffat | 1,060 |
| Fort Collins | 1,841 |
| Florence | 643 |
| Iles | 1,151 |
| Tow Creek | 412 |
| Boulder | 25 |
| Rangely | 100 |
| Total | 5,232 |
| **NEW MEXICO** | |
| Artesia | 834 |
| Cap Rock (Maljamar) | 733 |
| Hogback | 410 |
| Rattlesnake | 1,486 |
| Table Mesa | 114 |
| Jal | 80 |
| Hobbs High | 380 |
| Total | 4,037 |
| Grand total | 70,211 |

## CONTROL OF SUPPLIES TOPIC FOR DISCUSSION

Control of plant equipment and material supplies will be discussed at the next general meeting of the Petroleum Accountants' Society of Oklahoma to be held in the Mayo Hotel, Tulsa, Thursday evening, December 19, at 6. A paper on that subject will be presented by a committee composed of E. S. Wilkerson, Independent Oil & Gas Co., chairman; W. E. Boswell, Independent Oil & Gas Co.; E. F. Brite and H. G. Humphreys, Skelly Oil Co.

Membership in the organization is open to men 21 or more years old directly interested in the subject of petroleum accounting and residing in the Mid-Continent area, including the Panhandle of Texas, but not the rest of that state. Membership blanks may be obained by writing to R. M. Higgins, chairman of the Membership Committee, Independent Oil & Gas Co., Tulsa, or D. B. Catterlin, Gypsy Oil Co., Tulsa.

## COMPANY TO TAKE OVER REFUGIO OIL PROPERTY

SAN ANTONIO, Tex., Dec. 9.—The Union Producing Co., with 1,000,000 shares of no par value, has been organized as a subsidiary of the United Gas Co. (Moody Seagraves) to take over the Mission Drilling Co.'s Pettus block of leases and the oil production of that company and of the Houston Gulf Gas Co. in the Refugio Field. The Mission Drilling Co. will go out of existence, its gas production being turned over to the Houston Gulf Gas Co.

George E. Smith, who was vice president and general manager of the Mission Drilling Co., continues in the same office with the new company. O. R. Seagraves is president. The new company starts with 3,500 bbls. daily production of oil in the Refugio Field and has about 80 per cent of the oil acreage of the field.

# Bureau of Mines Statistics, Month of October

**Prepared Under the Supervision of G. R. Hopkins, Petroleum Economics Division, E. B. Swanson, Acting Chief Economist. December 2, 1929.**

Crude Petroleum—According to reports received by the Bureau of Mines, Department of Commerce, the production of crude petroleum in the United States during October, 1929, amounted to 88,104,000 bbls. Although this figure represents an increase over the previous month in total quantity, it was a decline in daily average production of 67,000 bbls.

The most important factor in the decrease in daily average production in October was the decline in Oklahoma, or, more specificially, in the Seminole district. The decrease in this field in October amounted to about 50,000 bbls. per day, which was more than double the increase in daily average production of the Oklahoma City Pool. Production in California, the leading producing State, registered a slight decline in October, the result of a larger decline at Santa Fe Springs. Daily average production in Texas continued to decline, although at a much reduced rate. The daily average output in the West Texas fields was lower but the Gulf Coast district registered a material increase in production as new production from Refugio and from the new deep sand at Barbers Hill and other fields made itself felt. Of particular interest during the month was the increase in output recorded by many of the producing states east of the Mississippi, particularly the gain in Pennsylvania.

Increased runs to stills and the decline in production east of California were reflected in crude stocks east of California, which fell from 386,362,000 bbls. on October 1, to 384,502,000 bbls. on October 31. This decline of 2,160,000 bbls. was the largest withdrawal from these stocks since July, 1926. Stocks of both light and heavy crudes in California continued to increase in October but at a reduced rate as compared with September.

Although the increase in stocks of crude petroleum for the country as a whole was materially lower in October, the increase in stocks of refined oils was more than double the September increase. consequently total stocks of all oils continued to increase and amounted to 680,790,000 bbls. on October 31.

Refined Products—Daily average runs to stills of crude petroleum in October amounted to 2,851,000 bbls., a material increase over September.

Gasoline production reached a new high level in October, when the daily average amounted to 1,279,000 bbls. As expected, due to the approach of the winter season, the daily average indicated domestic demand for gasoline dropped off from 1,140,000 bbls. in September to 1,059,000 bbls. in October. The latter figure, however, was 7 per cent above October, 1928. Exports of gasoline were materially higher but stocks accumulated for the first time since March amounted to 35,042,000 bbls. on October 31. At the current rate of total demand, these stocks represent 28 days' supply as compared with 26 days' supply on hand a month ago and 24 days' supply on hand a year ago.

The refinery data of this report, compiled from schedules of 351 refineries with an aggregate daily recorded crude oil capacity of 3,590,000 bbls., cover, as far as the bureau is able to determine, all operations during October. These refineries were operated at 79 per cent of their recorded capacity, given above, as compared with 347 refineries, operating at 80 per cent of their capacity in September.

### Statistics of Important Fields October, 1929

With the exception of the Oklahoma City Pool, all of the flush producing areas of the country reported material decreases in output in October. In the Seminole area the decline was particularly severe, the daily average production fell from 405,000 bbls. in September to 355,000 bbls. in October. A further decline in output in the Winkler Field was the chief cause of a decrease in the daily average production of the West Texas district during October of 9,000 bbls. Indications that the Santa Fe Springs Field had reached its peak were evidenced in the October statistics which recorded a 13,000-bbl. decline in daily average production from September following a very slight recession in September as compared with August. Efforts to retard the development of the Oklahoma City Pool in October were fairly successful but the daily average output was nearly double the September average.

Stocks of crude petroleum in the Seminole Field increased in October and amounted to 18,577,000 bbls. on October 31.

Of particular interest from the standpoint of wells was the drop in total new initial production in the West Texas area of from 274,400 bbls. in September to 55,400 bbls. in October, both from approximately the same number of wells. That the development at Santa Fe Springs was slowing down in October was indicated by the number of completions, 11, as compared with 28 the previous month.

**COMPARATIVE ANALYSES (Thousands of barrels of 42 U. S. gallons)**

| | | Runs to stills | | Imports* | | Exports* | | | Dom. demand | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total | Daily av. | Total | Daily av. | Total | Daily av. | Stocks end of period | Total | Dly. av. |
| Crude Petroleum— | | | | | | | | | | |
| Oct., | 1929.. | 88,390 | 2,851 | 5,766 | 186 | 2,869 | 93 | †426,543 | ..... | ... |
| Sept., | 1929.. | 84,099 | 2,803 | 6,953 | 232 | 1,988 | 66 | †427,095 | ..... | ... |
| Jan.-Oct., | 1929.. | 825,984 | 2,717 | 68,493 | 225 | 21,705 | 71 | †426,543 | ..... | ... |
| Oct., | 1928.. | 79,663 | 2,570 | 6,703 | 216 | 2,015 | 65 | †384,633 | ..... | ... |
| Jan.-Oct., | 1928.. | 766,626 | 2,481 | 66,052 | 217 | 15,746 | 52 | †384,633 | ..... | ... |
| | | Production | | | | | | | | |
| Gasoline— | | Total | Dly. av. | | | | | | | |
| Oct., | 1929.. | 39,663 | 1,279 | 1,026 | 33 | 6,053 | 195 | 35,042 | 32,816 | 1,059 |
| Sept., | 1929.. | 37,152 | 1,238 | 901 | 30 | 4,426 | 148 | 33,222 | 34,193 | 1,140 |
| Jan.-Oct., | 1929.. | 359,758 | 1,183 | 7,168 | 24 | 51,150 | 168 | 35,042 | 313,800 | 1,032 |
| Oct., | 1928.. | 34,415 | 1,110 | 388 | 13 | 4,050 | 131 | 26,435 | 30,696 | 990 |
| Jan.-Oct., | 1928.. | 309,946 | 1,016 | 3,574 | 12 | 44,429 | 146 | 26,435 | 275,972 | 905 |
| Kerosene— | | | | | | | | | | |
| Oct., | 1929.. | 5,379 | 174 | 10 | ... | 2,252 | 73 | 8,865 | 3,136 | 101 |
| Sept., | 1929.. | 4,667 | 156 | ..... | ... | 1,105 | 37 | 8,864 | 3,387 | 113 |
| Jan.-Oct., | 1929.. | 47,477 | 156 | 154 | 1 | 17,017 | 56 | 8,865 | 30,750 | 101 |
| Oct., | 1928.. | 5,145 | 166 | 55 | 2 | 1,755 | 57 | 8,633 | 3,405 | 110 |
| Jan.-Oct., | 1928.. | 49,650 | 163 | 182 | 1 | 18,707 | 61 | 8,633 | 30,207 | 99 |
| Gas Oil and Fuel Oil— | | | | | | | | | | |
| Oct., | 1929.. | 38,974 | 1,257 | 2,589 | 84 | 4,057 | 131 | ‡149,793 | ..... | .... |
| Sept., | 1929.. | 37,468 | 1,249 | 1,811 | 60 | 1,953 | 65 | ‡150,656 | ..... | .... |
| Jan.-Oct., | 1929.. | 375,499 | 1,235 | 16,563 | 54 | 31,581 | 104 | ‡149,793 | ..... | .... |
| Oct., | 1928.. | 37,029 | 1,194 | 320 | 10 | 3,356 | 108 | ‡136,624 | ..... | .... |
| Jan.-Oct., | 1928.. | 353,873 | 1,160 | 6,211 | 20 | 37,839 | 124 | ‡136,624 | ..... | .... |
| Lubricants— | | | | | | | | | | |
| Oct., | 1929.. | 2,885 | 93 | 2 | ... | 1,077 | 35 | 8,021 | 1,378 | 44 |
| Sept., | 1929.. | 2,852 | 95 | 3 | ... | 690 | 23 | 7,589 | 2,054 | 68 |
| Jan.-Oct., | 1929.. | 29,039 | 96 | 34 | ... | 9,462 | 31 | 8,021 | 19,930 | 66 |
| Oct., | 1928.. | 2,979 | 96 | 1 | ... | 770 | 25 | 7,830 | 2,122 | 68 |
| Jan.-Oct., | 1928.. | 28,917 | 95 | 10 | ... | 9,282 | 30 | 7,830 | 19,675 | 65 |
| Wax (thousands of pounds)— | | | | | | | | | | |
| Oct., | 1929.. | 56,377 | 1,819 | 3,943 | 127 | 39,037 | 1,259 | 189,094 | 15,903 | 513 |
| Sept., | 1929.. | 44,513 | 1,484 | 2,896 | 97 | 31,990 | 1,066 | 183,714 | 22,583 | 753 |
| Jan.-Oct., | 1929.. | 530,195 | 1,744 | 34,053 | 112 | 265,449 | 873 | 189,094 | 220,049 | 724 |
| Oct., | 1928.. | 54,546 | 1,760 | 1,930 | 62 | 26,281 | 848 | 92,814 | 22,798 | 735 |
| Jan.-Oct., | 1928.. | 518,794 | 1,701 | 19,608 | 64 | 340,927 | 1,118 | 92,814 | 255,299 | 837 |

*From Bureau of Foreign and Domestic Commerce, subject to revision. Exports include shipments to Alaska, Hawaii, and Porto Rico. †Includes California light crude. ‡Includes California heavy crude and fuel oil.

**PRODUCTION AND GRAVITY (A.P.I.)**
(Barrels of 42 U. S. gallons)

| | October, 1929 total | October, 1929 daily av. | September, 1929 total | September, 1929 daily av. | October, 1928 total | October, 1928 daily av. | Average gravity |
|---|---|---|---|---|---|---|---|
| Seminole, St. Louis, etc. | 11,004,000 | 355,000 | 12,138,000 | 405,000 | 10,170,000 | 328,000 | 39.0 |
| Oklahoma City | 1,280,000 | 41,000 | 663,000 | 22,000 | 3,910,000 | 126,000 | 40.0 |
| West Texas | 11,369,000 | 367,000 | 11,279,000 | 376,000 | 10,861,000 | 350,000 | 39.0 |
| Long Beach* | 5,046,000 | 163,000 | 5,096,000 | 170,000 | 5,987,000 | 193,000 | 26.0 |
| Santa Fe Springs* | 8,320,000 | 268,000 | 8,427,000 | 281,000 | 1,115,000 | 36,000 | 33.0 |

*From American Petroleum Institute.

**STOCKS AT SEMINOLE-ST. LOUIS, ETC.**
(Barrels of 42 U. S. gallons)

| | Oct. 31, 1929 | Sept. 30, 1929 | Oct. 31, 1928* |
|---|---|---|---|
| Producers' stocks | 525,000 | 556,000 | 436,000 |
| Tank farm stocks | 18,052,000 | 17,985,000 | 17,449,000 |
| Total stocks | 18,577,000 | 18,541,000 | 17,885,000 |

*Includes stocks at Seminole only.

**RECORD OF WELLS, OCTOBER, 1929***

| | Completions oil | gas | dry | Total initial production (bbls.) | Avg. initial production (bbls.) | Drilling October 31 |
|---|---|---|---|---|---|---|
| Seminole, St. Louis, etc. | 108 | 6 | 24 | 109,900 | 1,000 | 295 |
| West Texas | 46 | 0 | 35 | 55,400 | 1,200 | 282 |
| Long Beach | 12 | 0 | 3 | 10,900 | 900 | 66 |
| Santa Fe Springs | 11 | 0 | 0 | 20,000 | 1,800 | 179 |

*From The Oil and Gas Journal.

**SUPPLY AND DEMAND OF ALL OILS**
(Including wax, coke, and asphalt in thousands of barrels of 42 U. S. gallons.)

| | Oct., 1929 | Sept., 1929 | Oct., 1928* | Jan.-Oct., 1929 | Jan.-Oct., 1928* |
|---|---|---|---|---|---|
| NEW SUPPLY: | | | | | |
| Domestic production: | | | | | |
| Crude petroleum | 88,104 | 87,269 | 79,751 | 847,103 | 745,858 |
| Daily average | 2,842 | 2,909 | 2,573 | 2,787 | 2,445 |
| Natural gasoline | 4,912 | 4,574 | 3,731 | 43,310 | 34,628 |
| Benzol | 264 | 253 | 245 | 2,571 | 2,317 |
| Total production | 93,280 | 92,096 | 83,727 | 892,984 | 782,803 |
| Daily average | 3,009 | 3,070 | 2,701 | 2,937 | 2,567 |
| Imports: | | | | | |
| Crude petroleum | 5,766 | 6,953 | 6,703 | 68,493 | 66,052 |
| Refined products | 3,642 | 2,725 | 771 | 24,045 | 10,066 |
| Total new supply all oils | 102,688 | 101,774 | 91,201 | 985,522 | 858,921 |
| Daily average | 3,313 | 3,392 | 2,942 | 3,242 | 2,816 |
| Increase in stocks all oils | 3,369 | 5,355 | 39 | 67,586 | 16,815 |
| DEMAND: | | | | | |
| Total demand | 99,319 | 96,419 | 91,162 | 917,936 | 842,106 |
| Daily average | 3,204 | 3,214 | 2,941 | 3,020 | 2,761 |
| Exports†: | | | | | |
| Crude petroleum | 2,869 | 1,988 | 2,015 | 21,705 | 15,746 |
| Refined products | 13,940 | 8,555 | 10,271 | 113,163 | 114,745 |
| Domestic demand | 82,510 | 85,876 | 78,876 | 783,068 | 711,615 |
| Daily average | 2,662 | 2,863 | 2,544 | 2,576 | 2,333 |
| Excess of daily average domestic production over domestic demand | 347 | 207 | 157 | 361 | 234 |
| STOCKS (end of month): | | | | | |
| Crude petroleum: | | | | | |
| Pipe line, tank farm and refinery: | | | | | |
| East of California* | 384,502 | 386,662 | 374,640 | 384,502 | 374,640 |
| California‡ | 153,117 | 150,443 | 113,709 | 153,117 | 113,709 |
| Total crude‡ | 537,619 | 537,105 | 488,349 | 537,619 | 488,349 |
| Natural gasoline at plants | 490 | 661 | 402 | 490 | 402 |
| Refined products | 142,681 | 139,655 | 125,207 | 142,681 | 125,207 |
| Grand total stocks, all oils | 680,790 | 677,421 | 613,958 | 680,790 | 613,958 |
| Days' supply§ | 212 | 211 | 209 | 225 | 222 |
| Bunker oil (included above in domestic demand) | 4,540 | 4,424 | 4,558 | 44,098 | 42,803 |

*1928 figures are final and include producers' stocks. †Includes shipments to Alaska, Hawaii and Porto Rico. ‡Includes fuel oil in California. §Grand total stocks all oils divided by daily average total demand.

**INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS (Barrels)**

| Domestic petroleum by fields of origin: | October, 1929 Total | October, 1929 Daily av. | September, 1929 Total | September, 1929 Daily av. | Jan.-Oct., 1929 | Jan.-Oct., 1928 |
|---|---|---|---|---|---|---|
| Appalachian | 3,143,000 | 101,400 | 2,904,000 | 96,800 | 27,940,000 | 27,197,000 |
| Lima-Indiana | 193,000 | 6,200 | 233,000 | 7,800 | 2,016,000 | 1,235,000 |
| Michigan | 505,000 | 16,300 | 510,000 | 17,000 | 3,589,000 | 436,000 |
| Ill. and S.W. Ind. | 581,000 | 18,700 | 897,000 | 29,900 | 7,069,000 | 6,961,000 |
| Mid-Continent | 51,129,000 | 1,649,300 | 48,304,000 | 1,610,100 | 480,184,000 | 441,302,000 |
| Gulf Coast | 5,162,000 | 166,500 | 4,396,000 | 146,500 | 42,657,000 | 37,920,000 |
| Rocky Mountain | 2,408,000 | 77,700 | 1,993,000 | 66,500 | 22,670,000 | 25,919,000 |
| Deliveries and exports | 63,121,000 | 2,036,100 | 59,237,000 | 1,974,600 | 586,125,000 | 540,970,000 |
| Deliveries | 60,983,000 | 1,967,200 | 57,639,000 | 1,921,300 | 570,844,000 | 529,982,000 |
| Foreign petroleum | 5,767,000 | 186,000 | 7,003,000 | 233,400 | 68,637,000 | 65,928,000 |
| Deliveries of domestic and foreign petrol'm | 66,750,000 | 2,153,200 | 64,642,000 | 2,154,700 | 639,481,000 | 595,910,000 |

**NUMBER OF WELLS COMPLETED***

| | Oct., 1929 | Sept., 1929 | Oct., 1928 | Jan.-Oct., 1929 | Jan.-Oct., 1928 |
|---|---|---|---|---|---|
| Oil | 1,535 | 1,440 | 1,206 | 13,051 | 10,369 |
| Gas | 262 | 240 | 284 | 2,284 | 2,240 |
| Dry | 702 | 680 | 595 | 6,550 | 5,852 |
| Total | 2,499 | 2,360 | 2,085 | 21,885 | 18,361 |

*From The Oil and Gas Journal and California office of American Petroleum Institute.

**IMPORTS AND EXPORTS OF CRUDE PETROLEUM (Barrels)**
(From Bureau of Foreign and Domestic Commerce)

| | Oct. 1929 Total | Oct. 1929 Dy. av. | Sept. 1929 Total | Sept. 1929 Dy. av. | Jan.-Oct. 1929 | Jan.-Oct. 1928 |
|---|---|---|---|---|---|---|
| Imports | 5,766,000 | 186,000 | 6,953,000 | 231,800 | 68,493,000 | 66,052,000 |
| From Mexico | 1,043,000 | 33,700 | 1,604,000 | 53,500 | 11,243,000 | 14,331,000 |
| From Venezuela | 3,023,000 | 97,500 | 4,395,000 | 146,500 | 44,269,000 | 38,932,000 |
| From Colombia | 1,591,000 | 51,300 | 845,000 | 28,200 | 10,504,000 | 10,287,000 |
| From other countries | 109,000 | 3,500 | 109,000 | 3,600 | 2,477,000 | 2,502,000 |
| Exports | 2,869,000 | 92,500 | 1,988,000 | 66,300 | 21,705,000 | 15,746,000 |
| Domestic crude oil: | | | | | | |
| To Canada | 2,428,000 | 78,300 | 1,782,000 | 59,400 | 18,370,000 | 12,803,000 |
| To other countries | 441,000 | 14,200 | 206,000 | 6,900 | 3,328,000 | 2,938,000 |
| Shipments | ..... | ..... | ..... | ..... | 7,000 | 4,000 |
| Foreign crude oil | ..... | ..... | ..... | ..... | ..... | 1,000 |

### GASOLINE PRODUCTION BY THE VARIOUS METHODS, OCTOBER, 1929

| | Straightrun (bbls.) | % | Cracked (bbls.) | % | Natural gasoline (bbls.) | % | Total (bbls.) |
|---|---|---|---|---|---|---|---|
| East Coast | 2,527,000 | 49 | 2,508,000 | 48 | 164,000 | 3 | 5,199,000 |
| Appalachian | 895,000 | 64 | 455,000 | 32 | 55,000 | 4 | 1,405,000 |
| Ind., Ill., Ky., etc. | 3,067,000 | 52 | 2,424,000 | 42 | 362,000 | 6 | 5,853,000 |
| Okla., Kans., Mo. | 3,170,000 | 58 | 1,835,000 | 34 | 430,000 | 8 | 5,435,000 |
| Texas | 4,319,000 | 48 | 3,442,000 | 39 | 1,143,000 | 13 | 8,904,000 |
| Louisiana and Arkansas | 1,203,000 | 43 | 981,000 | 35 | 630,000 | 22 | 2,814,000 |
| Rocky Mountain | 661,000 | 48 | 571,000 | 42 | 133,000 | 10 | 1,365,000 |
| California | 5,860,000 | 67 | 1,136,000 | 13 | *1,692,000 | 20 | 8,688,000 |
| Total | 21,702,000 | 55 | 13,352,000 | 34 | 4,609,000 | 11 | 39,663,000 |
| Total Sept., 1929 | 20,251,000 | 55 | 12,803,000 | 34 | 4,098,000 | 11 | 37,152,000 |
| Total Jan.-Oct., 1929 | 205,244,000 | 57 | 116,965,000 | 33 | 37,549,000 | 10 | 359,758,000 |
| Total Oct., 1928 | 19,609,000 | 57 | 11,532,000 | 33 | 3,274,000 | 10 | 34,415,000 |
| Gulf Coasts | 3,801,000 | 43 | 3,665,000 | 41 | 1,386,000 | 16 | 8,852,000 |

*Includes 207,000 bbls. run through pipe lines.

### PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES WITH CLASSIFICATION BY GRAVITY

(Barrels of 42 U. S. gallons.)

| | Oct., 1929 Total | Oct., 1929 Daily av. | Sept., 1929 Total | Sept., 1929 Daily av. | Jan.-Oct., 1929 | Jan.-Oct., 1928 |
|---|---|---|---|---|---|---|
| FIELD— | | | | | | |
| Appalachian | 3,201,000 | 103,300 | 2,839,000 | 94,700 | 27,802,000 | 25,944,000 |
| Lima-Indiana | 134,000 | 4,300 | 125,000 | 4,200 | 1,324,000 | 1,431,000 |
| Michigan | 505,000 | 16,300 | 510,000 | 17,000 | 3,589,000 | 435,000 |
| Illinois-Southwest Indiana | 642,000 | 20,700 | 601,000 | 20,000 | 6,065,000 | 6,227,000 |
| Mid-Continent | 49,175,000 | 1,586,300 | 50,112,000 | 1,670,400 | 492,345,000 | 458,163,000 |
| Gulf Coast | 5,209,000 | 168,000 | 4,659,000 | 155,300 | 45,069,000 | 38,676,000 |
| Rocky Mountain | 2,338,000 | 75,400 | 2,319,000 | 77,300 | 21,890,000 | *24,548,000 |
| California | 26,900,000 | 867,700 | 26,104,000 | 870,100 | 249,019,000 | 190,434,000 |
| Total United States | 88,104,000 | 2,842,000 | 87,269,000 | 2,909,000 | 847,103,000 | 745,858,000 |
| STATE | | | | | | |
| Arkansas | 1,971,000 | 63,600 | 1,953,000 | 65,100 | 21,395,000 | 26,952,000 |
| California | 26,900,000 | 867,700 | 26,104,000 | 870,100 | 249,019,000 | 190,434,000 |
| Colorado | 168,000 | 5,400 | 182,000 | 6,100 | 1,981,000 | 2,340,000 |
| Illinois | 565,000 | 18,200 | 531,000 | 17,700 | 5,308,000 | 5,440,000 |
| Indiana | 82,000 | 2,600 | 75,000 | 2,500 | 812,000 | 864,000 |
| Southwestern | 77,000 | 2,500 | 70,000 | 2,300 | 757,000 | 787,000 |
| Northeastern | 5,000 | 100 | 5,000 | 200 | 55,000 | 77,000 |
| Kansas | 3,677,000 | 118,600 | 3,959,000 | 132,000 | 35,965,000 | 32,801,000 |
| Kentucky | 810,000 | 26,100 | 722,000 | 24,100 | 6,340,000 | 6,154,000 |
| Louisiana | 1,893,000 | 61,100 | 1,780,000 | 59,300 | 16,799,000 | 18,414,000 |
| Gulf Coast | 694,000 | 22,400 | 636,000 | 21,200 | 6,041,000 | 5,854,000 |
| Rest of State | 1,199,000 | 38,700 | 1,144,000 | 38,100 | 10,758,000 | 12,560,000 |
| Michigan | 505,000 | 16,300 | 510,000 | 17,000 | 3,589,000 | 435,000 |
| Montana | 262,000 | 8,400 | 255,000 | 8,500 | 2,703,000 | 3,349,000 |
| New Mexico | 241,000 | 7,800 | 216,000 | 7,200 | 1,203,000 | 748,000 |
| New York | 289,000 | 9,300 | 282,000 | 9,400 | 2,767,000 | 2,087,000 |
| Ohio | 596,000 | 19,300 | 541,000 | 18,000 | 5,634,000 | 5,955,000 |
| Central and Eastern | 467,000 | 15,100 | 421,000 | 14,000 | 4,365,000 | 4,601,000 |
| Northwestern | 129,000 | 4,200 | 120,000 | 4,000 | 1,269,000 | 1,354,000 |
| Oklahoma | 20,669,000 | 666,700 | 21,372,000 | 712,400 | 214,450,000 | 205,057,000 |
| Osage County | 1,214,000 | 39,200 | 1,178,000 | 39,300 | 12,653,000 | 16,849,000 |
| Rest of state | 19,455,000 | 627,500 | 20,194,000 | 673,100 | 201,806,000 | 188,208,000 |
| Pennsylvania | 1,121,000 | 36,200 | 959,000 | 32,000 | 9,642,000 | 8,278,000 |
| Tennessee | 2,000 | 100 | 1,000 | ... | 18,000 | 41,000 |
| Texas | 26,174,000 | 844,300 | 25,707,000 | 856,900 | 248,796,000 | 213,615,000 |
| Gulf Coast | 4,515,000 | 145,600 | 4,023,000 | 134,100 | 39,028,000 | 32,822,000 |
| Rest of state | 21,659,000 | 698,700 | 21,684,000 | 722,800 | 209,768,000 | 180,793,000 |
| West Virginia | 512,000 | 16,500 | 454,000 | 15,200 | 4,670,000 | 4,783,000 |
| Wyoming | 1,667,000 | 53,800 | 1,666,000 | 55,500 | 16,003,000 | 18,105,000 |
| Salt Creek | 992,000 | 32,000 | 972,000 | 32,400 | 9,486,000 | 11,956,000 |
| Rest of state | 675,000 | 21,800 | 694,000 | 23,100 | 6,517,000 | 6,149,000 |
| CLASSIFICATION BY GRAVITY (approx.): | | | | | | |
| Light crude | 79,183,000 | 2,554,200 | 78,509,000 | 2,617,000 | 763,443,000 | 666,501,000 |
| Heavy crude | 8,921,000 | 287,800 | 8,760,000 | 292,000 | 83,660,000 | 79,357,000 |

*Includes 6,000 bbls. for Alaska and Utah.

### STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES (Barrels)

| AT REFINERIES (and in coastwist transit thereto). Reported by location of storage: | Re- | Oct. 31, 1929 | Sept. 30 1929 | Oct. 31 1928 |
|---|---|---|---|---|
| East coast: Domestic | | 3,940,000 | 3,899,000 | 3,235,000 |
| Foreign: | | 4,067,000 | 3,748,000 | 3,686,000 |
| Appalachian | | 2,830,000 | 2,803,000 | 2,131,000 |
| Indiana, Illinois, Kentucky, etc | | 2,859,000 | 2,809,000 | 2,931,000 |
| Oklahoma, Kansas, and Missouri | | 5,305,000 | 5,369,000 | 5,329,000 |
| Texas: Inland | | 1,798,000 | 1,745,000 | 1,712,000 |
| Gulf coast: Domestic | | 10,144,000 | 10,438,000 | 7,663,000 |
| Foreign | | 615,000 | 557,000 | 158,000 |
| Arkansas and Inland Louisiana | | 1,183,000 | 1,347,000 | 936,000 |
| Lousiana Gulf coast: Domestic | | 4,122,000 | 4,384,000 | 4,220,000 |
| Foreign | | 1,574,000 | 1,663,000 | 1,031,000 |
| Rocky Mountain | | 1,426,000 | 1,343,000 | 1,774,000 |
| Total east of California | | 44,863,000 | 45,105,000 | 39,806,000 |
| ELSEWHERE THAN AT REFINERIES: | | | | |
| Domestic—reported by field of origin: | | | | |
| Appalachian: | | | | |
| N. Y., Pa., W. Va., Eastern and Central Ohio | Gross | 4,890,000 | 4,888,000 | 5,573,000 |
| | Net | 4,572,000 | 4,555,000 | 5,270,000 |
| Kentucky | Gross | 947,000 | 905,000 | 986,000 |
| | Net | 805,000 | 764,000 | 834,000 |
| Lima-Indiana | Gross | 656,000 | 715,000 | 1,517,000 |
| | Net | 470,000 | 329,000 | 1,335,000 |
| Illinois-Southwest Indiana | Gross | 11,064,000 | 11,004,000 | 12,107,000 |
| | Net | 10,363,000 | 10,302,000 | 11,440,000 |
| Mid-Continent: | | | | |
| Oklahoma, Kansas, Panhandle, Central, North and West Texas | Gross | 268,994,000 | 270,512,000 | 250,331,000 |
| | Net | 256,147,000 | 257,611,000 | 238,241,000 |
| Northern Louisiana and Arkansas | Gross | 25,402,000 | 25,958,000 | 29,037,000 |
| | Net | 21,762,000 | 22,252,000 | 26,072,000 |
| Gulf coast: | Gross | 21,137,000 | 21,180,000 | 19,237,000 |
| | Net | 20,684,000 | 20,637,000 | 18,752,000 |
| Rocky Mountain: | Gross | 24,781,000 | 24,850,000 | 26,031,000 |
| | Net | 24,721,000 | 24,791,000 | 25,991,000 |
| Total pipe line and tank farm stocks east of California | Gross | 357,871,000 | 360,012,000 | 344,819,000 |
| | Net | 339,524,000 | 341,441,000 | 327,936,000 |
| Foreign crude petroleum on Atlantic coast | | 71,000 | 45,000 | 52,000 |
| Foreign crude petroleum on Gulf coast | | 44,000 | 71,000 | 155,000 |
| Total foreign crude petroleum | | 115,000 | 116,000 | 207,000 |
| Total refinery, pipe line and tank farm stocks of domestic and foreign crude petroleum east of California | | 384,502,000 | 386,662,000 | 367,949,000 |
| CLASSIFICATION BY GRAVITY (approx): | | | | |
| East of California: | | | | |
| Light crude (24° and above) | | 344,181,000 | 345,673,000 | 319,221,000 |
| Heavy crude (below 24°) | | 40,321,000 | 40,989,000 | 48,728,000 |
| California: | | | | |
| Light (20° and above) | | 42,041,000 | 40,433,000 | 16,684,000 |
| Heavy (including fuel) | | 111,076,000 | 110,010,000 | 97,025,000 |
| PRODUCERS' STOCKS (not included above, approx): | | | | |
| East of California | | 6,250,000 | 6,450,000 | 6,691,000 |
| California | | 694,000 | 316,000 | * |

*Not available.

### SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES (Barrels)

| | Oct., 1929 | Sept., 1929 | Oct., 1928 | Jan.-Oct., 1929 | Jan.-Oct., 1928 |
|---|---|---|---|---|---|
| Crude oil | ..... | ..... | ..... | 1,299,000 | 2,154,000 |
| Refined products | 2,886,000 | 2,732,000 | 2,100,000 | 22,674,000 | 17,043,000 |
| Gasoline | 2,299,000 | 2,050,000 | 1,601,000 | 19,376,000 | 13,604,000 |
| Tops | ..... | ..... | 80,000 | ..... | 339,000 |
| Kerosene | 54,000 | ..... | ..... | 126,000 | 1,000 |
| Gas oil | 491,000 | 658,000 | 283,000 | 2,876,000 | 1,972,000 |
| Fuel oil | 28,000 | 3,000 | 128,000 | 161,000 | 843,000 |
| Lubricants | 12,000 | 9,000 | 4,000 | 171,000 | 260,000 |
| Asphalt | 2,000 | 2,000 | 4,000 | 24,000 | 24,000 |

### RUNS TO STILLS AND OUTPUT OF REFINERIES IN THE UNITED STATES, OCTOBER, 1929

| Input— | Crude oil— Domestic | Crude oil— Foreign | Unfinished oils rerun | Natural gasoline | Total input (bbls.) |
|---|---|---|---|---|---|
| East Coast | 9,718,000 | 5,233,000 | 1,324,000 | 164,000 | 16,439,000 |
| Appalachian | 2,978,000 | ..... | 134,000 | 55,000 | 3,167,000 |
| Ind., Ill., Ky., etc. | 9,837,000 | ..... | 857,000 | 362,000 | 11,056,000 |
| Okla., Kans., Mo. | 9,962,000 | ..... | 355,000 | 430,000 | 10,747,000 |
| Texas | 19,223,000 | 138,000 | 665,000 | 1,143,000 | 21,169,000 |
| Louisiana and Arkansas | 6,156,000 | 297,000 | 284,000 | 630,000 | 7,367,000 |
| Rocky Mountain | 2,139,000 | ..... | 550,000 | 133,000 | 2,822,000 |
| California | 22,709,000 | ..... | *271,000 | †1,692,000 | 24,672,000 |
| Total United States | 82,722,000 | 5,668,000 | 4,440,000 | 4,609,000 | 97,439,000 |
| Daily av., 10/29 | 2,668,500 | 182,800 | 143,200 | 148,700 | 3,143,200 |
| Daily av., 9/29 | 2,603,600 | 199,700 | 138,000 | 136,600 | 3,078,300 |
| Texas Gulf Coast | 14,174,000 | 138,000 | 567,000 | 909,000 | 15,788,000 |
| Louisiana Gulf Coast | 3,945,000 | 297,000 | 6,000 | 477,000 | 4,725,000 |

| Output— | Gasoline (bbls.) | Kerosene (bbls.) | Gas oil and fuel oil (bbls.) | Lubricants (bbls.) | Wax (lbs.) |
|---|---|---|---|---|---|
| East Coast | 5,199,000 | 733,000 | 7,516,000 | 976,000 | 25,276,000 |
| Appalachian | 1,405,000 | 356,000 | 653,000 | 429,000 | 8,637,000 |
| Ind., Ill., Ky., etc. | 5,853,000 | 451,000 | 3,360,000 | 345,000 | 4,360,000 |
| Okla., Kans., Mo. | 5,435,000 | 848,000 | 3,114,000 | 197,000 | 3,036,000 |
| Texas | 8,904,000 | 1,455,000 | 8,082,000 | 572,000 | 5,470,000 |
| Louisiana and Arkansas | 2,814,000 | 502,000 | 2,445,000 | 91,000 | 6,093,000 |
| Rocky Mountain | 1,365,000 | 100,000 | 599,000 | 48,000 | 3,455,000 |
| California | 8,688,000 | 934,000 | 13,205,000 | 227,000 | ..... |
| Total United States | 39,663,000 | 5,379,000 | 38,974,000 | 2,885,000 | 56,377,000 |
| Daily av., 10/29 | 1,279,500 | 173,500 | 1,257,200 | 93,100 | 1,818,600 |
| Daily av., 9/29 | 1,238,400 | 155,600 | 1,248,900 | 95,100 | 1,483,800 |
| Texas Gulf Coast | 6,829,000 | 1,213,000 | 5,635,000 | 546,000 | 5,298,000 |
| Louisiana Gulf Coast | 2,023,000 | 440,000 | 1,242,000 | 75,000 | 6,093,000 |

| Output (continued)— | Coke (tons) | Asphalt (tons) | Other finished products (bbls.) | Unfinished products (bbls.) | Shortage (bbls.) |
|---|---|---|---|---|---|
| East Coast | 20,400 | 172,800 | 94,000 | 177,000 | 695,000 |
| Appalachian | 4,800 | 1,600 | 18,000 | 53,000 | 189,000 |
| Ind., Ill., Ky., etc. | 41,800 | 50,900 | 167,000 | 276,000 | 113,000 |
| Okla., Kans., Mo. | 30,400 | 2,600 | 51,000 | 399,000 | 505,000 |
| Texas | 43,400 | 17,500 | 20,000 | 790,000 | 1,015,000 |
| Louisiana and Arkansas | 13,400 | 42,600 | 214,000 | 762,000 | 220,000 |
| Rocky Mountain | 10,600 | 700 | 44,000 | 508,000 | 74,000 |
| California | 7,500 | 66,900 | 181,000 | *545,000 | 469,000 |
| Total United States | ‡172,300 | ‡355,600 | 789,000 | 3,510,000 | 3,190,000 |
| Daily av., 10/29 | 5,600 | 11,500 | 25,500 | 113,200 | 102,900 |
| Daily av., 9/29 | 5,400 | 12,200 | 26,100 | 107,400 | 107,100 |
| Texas Gulf Coast | 38,400 | 17,400 | 2,000 | 461,000 | 799,000 |
| Louisiana Gulf Coast | 13,200 | 37,600 | 209,000 | 358,000 | 87,000 |

*Includes 165,000 bbls. net tops produced. †Includes 207,000 bbls. run through pipe lines. ‡Wax, coke and asphalt equivalent to 277.7 pounds per barrel and 5.13 and 5.52 bbls. per ton respectively.

### STOCKS HELD BY REFINING COMPANIES IN THE UNITED STATES, OCTOBER, 31, 1929

| | Gasoline (bbls.) | Kerosene (bbls.) | Gas oil and fuel oil (bbls.) | Lubricants (bbls.) |
|---|---|---|---|---|
| East Coast | 4,512,000 | 1,144,000 | 8,664,000 | 2,729,000 |
| Appalachian | 995,000 | 261,000 | 957,000 | 1,132,000 |
| Ind., Ill., Ky., etc. | 4,333,000 | 931,000 | 3,811,000 | 751,000 |
| Okla., Kans., Mo. | 2,782,000 | 795,000 | 5,196,000 | 378,000 |
| Texas | 4,880,000 | 1,557,000 | 15,250,000 | 1,857,000 |
| Louisiana and Arkansas | 1,598,000 | 740,000 | *3,445,000 | 96,000 |
| Rocky Mountain | 1,717,000 | 334,000 | 1,394,000 | 184,000 |
| California | 14,225,000 | 3,103,000 | ..... | 894,000 |
| Total | 35,042,000 | 8,865,000 | ‡38,717,000 | 8,021,000 |
| Total 9/30/29 | 33,222,000 | 8,864,000 | ‡40,646,000 | 7,589,000 |
| Texas Gulf Coast | 3,982,000 | 1,336,000 | 10,986,000 | 1,813,000 |
| Louisiana Gulf Coast | 1,295,000 | 716,000 | *2,275,000 | 89,000 |

| | Wax (lbs.) | Coke (tons) | Asphalt (tons) | Other finished products (bbls.) | Unfinished oils (bbls.) |
|---|---|---|---|---|---|
| East Coast | 85,663,000 | 24,800 | 86,000 | 105,000 | 8,311,000 |
| Appalachian | 19,782,000 | 5,200 | 2,400 | 56,000 | 1,605,000 |
| Ind., Ill., Ky., etc. | 16,218,000 | 66,200 | 47,700 | 143,000 | 4,326,000 |
| Okla., Kans., Mo. | 7,690,000 | 99,500 | 3,700 | 35,000 | 2,205,000 |
| Texas | 7,195,000 | 269,200 | 14,500 | 17,000 | 13,040,000 |
| Louisiana and Arkansas | 31,225,000 | 56,200 | 26,900 | 65,000 | *1,740,000 |
| Rocky Mountain | 21,321,000 | 110,100 | 5,600 | 77,000 | 1,690,000 |
| California | ..... | 40,900 | 40,600 | 189,000 | ‡10,048,000 |
| Total | 189,094,000 | 672,100 | 227,400 | 687,000 | 45,365,000 |
| Total 9/30/29 | 183,714,000 | 648,500 | 230,500 | 682,000 | 43,275,000 |
| Texas Gulf Coast | 6,922,000 | 253,300 | 14,500 | 7,000 | 11,494,000 |
| Louisiana Gulf Coast | 31,225,000 | 56,200 | 21,600 | 62,000 | *4,399,000 |

*Approximately 2,500,000 bbls. gas oil and fuel oil transferred to unfinished oils. †East of California. ‡Includes 3,167,000 bbls. tops.

## FRANK DISCUSSIONS AT A.P.I. MEETING

(Continued from Page 40)

where more cracking would take place and where coke could collect."

The manufacture of bright stock was also discussed at length. The increasing importance of choosing the correct type of equipment has been made more intricate by the lower cold tests being demanded of the stock. The problem of dewaxing these stocks to the low pour point demanded has caused the development of several major changes in methods of chilling, methods of separating the wax and oil and in some cases has revived the use of principles that had been considered previously uneconomical. Papers discussing the manufacture of bright stock by R. D. Evans of the Independent Oil & Gas Co. and Dr. E. R. Lederer and R. Beattie of the Texas Pacific Coal & Oil Co. led to an exchange of some interesting ideas.

Max B. Miller, representing the company which bears his name, had the following to say regarding the trend in the manufacture of low cold test oils:

"In regard to low cold test oils that

we claim to be completely dewaxed, oils that show no cloud down to —35° F., they depend upon the crude from which they are made and range from 10° above to —5° F. in cold test. To that point you pay attention only to the cloud, and the oil remains bright until —35° F. Take any of those oils and chill it further to complete the dewaxing operation. It is possible to precipitate a part of the oil and rob its viscosity. It seems to me that if it is so necessary to get a low viscosity in order to get a low pourpoint, the place to do it is in the stills."

**Wax Extraction**

Interest was also shown on the work being done in the extraction of wax from oils by the use of selective solvents. Several laboratories have been carrying on large-scale experimental work and it was apparent from the discussion there still remains considerable possibility for the development or the finding of more efficient solvents. While no specific results were given, several reported that chlorinated solvents, as a class, generally tended to darken the mixture on standing and were not acceptable even though they are rather freely available.

**Gum in Gasoline**

The papers delivered by Doctor Egloff, Dr. W. F. Faragher and Dr. J. C. Morrell of the Universal Oil Products Co., C. R. Wagner and Julius Hyman of the Pure Oil Co. and E. C. Herthel and Frank Apgar of the Sinclair Refining Co. dealt with the problem of gum formation in gasolines and were so complete in themselves very little discussion followed. These papers were published in The Oil and Gas Journal on December 5. Interest centered around the use of inhibitors in a solution of the gum problem, but Dr. Vandeveer Voorhees of the Standard Oil Co. of Indiana had this word of caution to offer regarding their use: "It is necessary to guard against the excessive use of some of these chemical inhibitors for they sometimes cause the formation of gum themselves, especially where large amounts must be used."

## GREAT FIELD NOW BEING REJUVENATED

(Continued from Page 42)

cal rejuvenations at present due to extension work out in the Maricopa flats, where an aggressive but conservative drilling campaign is under way in Sections 7, 8, 9, 16, 17 and 18 in Township 11n, Range 23w, S.B.B.&M. Drilling operations in this area, unlike intensive town lot development in southern California flush fields, is predicated on an acreage basis in conformity with well established oil field practice. Attention is directed to the accompanying map showing the particular area under development and the relative location of various wells and properties. Outcrops of heavy oil and tar appear in a low range of hills which parallel the bottom edge of the map and then swing northwestward just beyond the acreage shown at the left side of the map. These outcrops contributed to present development and are responsible for the producing and abandoned wells located along the southern and western edge of the map as shown. Naturally those wells located near the outcrop did not show production comparable to that being secured from brown shale wells out in the flat area now under development.

**Signal Started Present Campaign**

The drilling campaign under way out in the Maricopa flats was precipitated by the Signal Oil & Gas Co. when its No. 2 Sheehan in Section 8-11-23, came in under a natural flow doing 1,975 bbls. per day from 3,242 feet last April. Since the completion of this well 20 others have been finished and several more should be tanking oil soon. The North American Oil Co. heads the list with six producers. No. 1 Sunset came in doing 1,000 bbls. initially; No. 2 Sunset, 975 bbls. per day; No. 3 Sunset, 1,100 bbls.; No. 4 Sunset, 830 bbls.; No. 1 Kirckhoff, 210 bbls., and No. 1 Lincoln, 450 bbls. The Signal Oil & Gas Co.'s No. 1 Sheehan was completed doing 175 bbls. per day; No. 2 Sheehan, 1,975 bbls.; No. 3 Sheehan, 1,070 bbls.; No. 4 Sheehan, 810 bbls.; and No. 1 Sunset 250 bbls. The Hancock Oil Co.'s Nos. 1 and 2 on the Wallace lease showed initials of 1,440 bbls. and 1,780 bbls. respectively. The Doyle Petroleum's No. 1 Weir came in flowing 1,460 bbls., while No. 2 on the same lease was finished doing 1,280 bbls. Other producing wells include the Rio Grande's No. 1 Havenstrite, which showed an initial of 2,125 bbls. per day; Birch Oil Co.'s No. 1 Royer, 1,020 bbls. daily; Wellington's No. 1 Son, 1,680 bbls.; the Standard's No. 7 in Section 9-11-23, a 2,400-bbl. well and the same company's Nos. 1 and 2 on the Graham lease, which made 150 bbls. and 125 bbls. respectively. It is interesting to note that several of the producing wells finished in this area during the past year are located on patented land. Charles A. Son's 160 acres in the NW Section 8-32-23, for instance, was the last patent issued in the Midway-Sunset Field previous to President Taft's withdrawal orders of 1909 and 1910. The northeast quarter of the same section was secured by Son on a preferential prospecting permit under the remedial sections of the Oil Land Leasing Bill. The Standard's acreage is owned in fee so that land in this area represents all three phases of ownership, segregated as to fee title, patented and permit land.

**44,000 Productive Acres**

The Midway-Sunset Field is located in the western part of Kern County about 40 miles southwest of Bakersfield. The productive area covers roughly some 44,000 acres, part of which are located out in the almost level floor of the San Joaquin Basin and another portion in the Buena Vista Hills and other outlying foothills. With the exception of periodic intervals, drilling operations at Midway-Sunset have been more or less spasmodic for a number of years. This has been due to the development of numerous flush fields in Los Angeles Basin and also because most of the productive acreage at Midway-Sunset has been drilled up for a long time and does not warrant additional development until some operator secures deeper production or extends the limits of production. While commenting on deep drilling it might not be amiss to mention the fact that brown shale development has proven an important factor in this field during the past few years and should continue to be of importance in the future.

The first well of importance to be finished in the Maricopa brown shale was the Obispo Oil Co.'s No. 6 in Section 32-12-23. This well, which was completed in September, 1925, flowing 6,000 bbls. a day and subsequently built up to 8,000 bbls. before sanding up, was the first substantial completion in the brown shale to be finished in this area. The second well to get production in this locality was the Obispo's No. 11 on the same property. Another important completion was the Obispo's No. 7, which came in doing 1,000 bbls. a day from the brown shale at 3,468 feet in March, 1927. Subsequent drilling in this particular section of the Midway-Sunset Field was unfavorable, indicating a rather pronounced lenticular condition, as far as brown shale production is concerned. In the extreme eastern end of the field the Standard completed No. 1 Rass in Section 10-11-23, doing 60 bbls. a day from 4,976 feet and subsequently recompleted it doing 250 bbls. a day from 5,175 feet. The top of the brown shale was logged in this project at 4,825 feet. Unlike the Obispo completions and other wells whose production was secured from the Maricopa brown shale, the Standard's producers on the Rass lease and the Union's wells on the Boss and Houchin leases in Section 10-11-23, are producing from oil sands and sandy shales within the Maricopa shale. The Houchin and Boss leases of the Union and the Standard's Rass lease in Section 10 are shown on the accompanying graph.

The Maricopa shales are generally considered to be the source of most of the oil in the Midway-Sunset Field and in some places sands and fractured shales within the Maricopa shale act as reservoirs. Production from the 35 anticline, on the other hand, is secured from the Etchegoin formation (lower Pliocene) which rests unconformably upon the Maricopa shales (Miocene). Petroleum engineers are unable to explain the lack of uniform distribution of the oil reservoirs within the Maricopa shale but it is quite probable that this is governed largely by local faulting and fractured zones caused by severe folding. Conditions in the area under development in Section 8-11-23, at the present time are similar to those existing in Section 10-11-23, in that production is coming from two well defined oil sands and shale within the brown shale.

### C. E. McCAFFERTY DEAD

Charles E. McCafferty, for years secretary to the late Lewis Emery, Jr., oil producer and refiner, died of pneumonia in Los Angeles, Calif., Tuesday, December 3. Mr. McCafferty was born in Butler, Pa., in July, 1872, but went to Bradford, Pa., in his early boyhood and lived in that city until after the death of Mr. Emery, when Mr. McCafferty retired from business and made a tour of the world. His daughter, Beth, and one brother, William A. McCafferty of Bradford, survive him.

### PRAIRIE P. L. SHIPMENTS

The Prairie Pipe Line Co.'s October shipments of crude oil were 6,191,204.46 bbls., a daily average of 206,373 bbls.

## WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 67)

Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine ..... Shut down 1,740 ft.

**COKE COUNTY**

Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft. ..... Shut down 2,892 ft.

Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor., Sec. 272, Blk. 1-A, H.&T.C. ..... Pay 3,755-56 ft.; 6⅝-in. casing set 3,451 ft.; underreaming at 4,053 ft.; total depth 4,250 ft.

**CONCHO COUNTY**

Duffy et al's No. 1 Callan, 1,520 ft. N and 1,120 ft. W of SE cor., Sec. 21, Blk. 10, H.&T.C.R.R. ..... Spudded and shut down.

Lamb & Slick's No. 1 Mosely, 2,490 ft. from N and 150 ft. from W of Sec. 1,338, Bachinan Sur. ..... Drlg. 880 ft.

Turner et al's No. 1 Borsig, 150 ft. from S of SE cor. G. Emig Sur. 130, 6 mi. W of Paint Rock ..... Shut down 735 ft.

**CRANE COUNTY**

Church & Field's No. 5 University-Duall, 990 ft. from W, 1,650 ft. from S, Sec. 39, Blk. 30 ..... Location.

Church-Weekly's No. 1 University, Sec. 34, Blk. 30, 2,310 ft. from N and E, University Land ..... Location.

Duffey et al's No. 7 Cowden Bros., 1,320 ft. from S and 1,420 ft. from E of Sec. 18, Blk. X, C.C.S.D.&R.G. N.G.R.R. Sur. ..... Derrick.

Gulf Prod. Co.'s No. 69 McElroy, 1,442 ft. S and 330 ft. E of NW cor. Gulf's lease, Sec. 185, Blk. F, C.C.S.D. &R.G.N.G.R.R. Sur. ..... Top salt 1,180 ft.; top lime 2,797 ft.; drlg. 2,860 ft.

Gulf Prod. Co.'s No. 70 McElroy, 1,442 ft. S and 2,970 ft. W of NE cor. of Gulf's lease out of Sec. 201, Blk. 5, C.C.S.D.&R.G.N.G.R.R. Sur. ..... Shut down 2,687 ft.

Humble Oil & Ref. Co.'s No. 1-E University, 2,310 ft. from N and 930 ft. from E, Sec. 40, Blk. 30, University Land ..... Location.

Republic Prod. Corp.'s No. 1 Hughes, 990 ft. from N and 1,650 ft. from W of their lease, Sec. 2, Julia Prather Sur. ..... Drlg. 1,880 ft.

The Texas Company's No. 3 University, 330 ft. N and E of SW of N half Sec. 46, Blk. 30, University Land.. Top salt 1,005 ft.; drlg. 3,000 ft.; 150 bbls. 12 hrs.

Tidal Oil Co.'s No. 2 University D, 330 ft. S and W of NE cor. NW of SW Sec. 34, Blk. 30, University Land.. Top pay 2,955 ft.; oil rose 2,000 ft. in hole; shot 160 qts. 2,955-3,025 ft.; flowed 200 bbls. 24 hrs.; drlg. by tools 3,032 ft.

Tidal Oil Co.'s No. 3 University-E, 330 ft. N and E of SW cor. E half of NW Sec. 39, Blk. 30, University Land ..... Drlg. 550 ft.

Warner-Quinlan Co.'s No. 6 University, 330 ft. S and E of NW of E half of SW Sec. 39, Blk. 30, University Land ..... Shut down 855 ft.

Warner-Quinlan Co.'s No. 7 University, 990 ft. S and 330 ft. E of NW of E half SW Sec. 39, Blk. 30, University Land ..... Location.

**CROCKETT COUNTY**

California Co.'s No. 1 Shannon, Lease 3, 1,663 ft. N and 2,323 ft. W of SE cor. Sec. 42, T.C.R.R. ..... Drlg. 725 ft.

Cushing R. & G. Co.'s No. 3 Powell, 330 ft. from S and E of Sec. 53, Blk. BB, G.C.&S.F.R.R. Sur. ..... Drlg. 560 ft.

Empire Gas & Fuel Co.'s No. 1 Shannon, 330 ft. from N and E of Sec. 42, T.C.R.R. Sur. ..... Top salt 1,130 ft.; drlg. 1,650 ft.

Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor., Sec. 33, Blk. 1, I.&G.N. Sur... Shut down 1,384 ft.

Magnolia Pet. Co.'s No. 1 Hoover, 2,310 ft. from N and 330 ft. from E of Sec. 12, Blk. 1, G.C.&S.F.R.R. Sur... Derrick.

T. P. Coal & Oil Co.'s No. 1 Shannon, 330 ft. from S and W of Sec. 44, T.C.R.R. Sur. ..... Top salt 1,060 ft.; drlg. 1,235 ft.

**CULBERSON COUNTY**

Grisham & Hunter Oil Corp.'s No. 1 fee, 330 ft. from S and W of Sec. 14, Blk. 59, T.&P. ..... Oil show 1,437 ft.; hole full salt water 2,612 ft.; shut down 2,870 ft.

Grisham & Hunter's No. 1 Seay, 330 ft. from S and W of Sec. 16, Blk. 59, Twp. 7, T.&P.R.R. Sur. ..... Hole full sulphur water 2,590 ft.; running 8-in. casing 2,605 ft.

Grisham-Hunter's No. 3 Seay, 330 ft. from S line, 330 ft. from W line, Sec. 16, Blk. 59, Twp. 7 ..... Underreaming 12½-in. casing 390 ft.; total depth 490 ft.

Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W. Sec. 20, Blk. 82 ..... Small show oil 1,331 ft.; shut down 2,260 ft.; hole full water; elev. 3,874 ft.

West Coast Oil & Exploration Co.'s No. 1 McGregor, C NW, Sec. 14, Blk. 81 ..... Slight show oil 740 ft.; shut down 825 ft.; repairing engine.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E. Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; oil show 2,523 ft.; hole full sulphur water; running 6-in. casing; shut down 3,508 ft.

**ECTOR COUNTY**

Anderson's No. 1 fee, 1,320 ft. E along N line, Sec. 19, and 150 ft. N at right angles with line, Sec. 18, Blk. B-16, Public School Land ..... Moving in material.

Cosden Oil Co.'s No. 1-A University, 2,310 ft. from N, 440 ft. from E of Sec. 1, Blk. 35 ..... Rigging up standard tools.

Cosden Oil Co.'s No. 1 University-B, 1,650 ft. S and 440 ft. W of NE cor. Sec. 2, Blk. 35 ..... Rigging up standard tools.

Landreth Prod. Corp.'s No. 1-A University, 990 ft. S and 440 ft. W of NE cor. Sec. 2, Blk. 35 ..... Rigging up standard tools.

Landreth Prod. Co.'s No. 1-T University, 990 ft. N, 440 ft. E, Sec. 3, Blk. 35, University Land ..... Location.
Llano Oil Co.'s No. 1 Midland, 330 ft. N and W of Sec. 18, Blk. 44, Twp. 3s, T.&P.R.R. Sur. ..... Location.
Penn-Humble's No. 1 York, 330 ft. N, 2,640 ft. W. Sec. 16, Blk. 44, Twp. 3s, T.&P.R.R. Sur. ..... Drlg. 1,930 ft.

**EL PASO COUNTY**

Laytex's No. 1 Malone, 2,200 ft. SW and NW, Sec. 46, J. M. Day Sur. ..... Fishing tools 1,481 ft.

**EDWARDS COUNTY**

A. M. Griffith's No. 1 Wardlow, Sec. 60, V-8, J. C. Clift Sur. ..... Shut down 3,800 ft.

**FISHER COUNTY**

Cranfill & Reynolds' No. 1 Bledsoe, 330 ft. N and E of SW SE, Sec. 200, B.B.B.&C.R.R. Sur. ..... Underreaming 12-in. casing 1,304 ft.
Landreth Prod. Corp.'s No. 2 Cooper, 330 ft. S and W of NE cor. Sec. 116, Blk. 1, H.&T.C.R.R. Sur. ..... Underreaming 2,650 ft.
Magnolia Pet. Co.'s No. 1 Lee, Sec. 357, 2,310 ft. from N and 4,286 ft. from W ..... Drlg. 3,800 ft.
Midwest Oil Co.'s No. 1 Steele, 660 ft. from S, 440 ft. from W, Sec. 210, Blk. 1 ..... Show oil 2,940-45 ft.; top pay 3,192 ft.; shut down 3,193 ft.
Roeser-Pendleton and Amerada's No. 1 First Nat'l Bank of Waco, 660 ft. N and 660 ft. W of SE cor. NE of Sec. 204, B.B.B.&C. Sur. ..... Running 6-in. casing 2,704 ft.

**GAINES COUNTY**

Louisiana O. & R. Co.'s No. 1 Ralph, 1,320 ft. from S and W of Sec. 7, Blk. A-28, Public School Land .... Drlg. 1,185 ft.

**GARZA COUNTY**

Pandem Oil Corp.'s No. 1 Stokes, 2,310 ft. N and E of SW Section 32, Blk. 5, G.H.&H.R.R. Sur. ..... Drlg. 2,530 ft.
Bell Thompson's No. 1 Tuffing, 330 ft. from S, 2,310 ft. from E, Sec. 10, Blk. 6, H.&G.N. ..... Shut down 2,610 ft.

**GLASSCOCK COUNTY**

Amerada Pet. Co.'s No. 1 Coffee, Sec. 22, Blk. 33, Twp. 2s, 990 ft. from N, 2,310 ft. from W ..... Rig.
The California Co.'s No. 3 Currie, 990 ft. S and 2,310 ft. W of NE cor., Sec. 219, Blk. 29, W.&N.W.R.R. Sur. .. Coring 2,365 ft.
California Co.'s No. 1 Jones, 330 ft. S from N and E lines, Sec. 25, Blk. 33, Twp. 2s, T.&P. Sur. ..... Rig.
Chal Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur... Shut down 1,147 ft.
Glasscock et al's No. 1 Edwards, 330 ft. from S, 1,650 ft. from E, Sec. 18, Blk. 33, Twp. 2s, T.&P.R.R. Sur... Cem. 6-in. casing 2,276 ft.; total depth 2,299 ft.; top pay 2,277 ft.
Kirby Pet. Co.'s No. 3 Baker, Sec. 23, Blk. 33, Twp. 2s, 1,650 ft. from N, 330 ft. W ..... Building rig.
Lion Oil & Ref. Co.'s No. 3 Coffee, 990 ft. S and 330 ft. W of NE cor. Sec. 22, Blk. 33, Twp. 2s, T.&P.R.R. Sur. ..... Topped lime 2,053 ft.; setting pipe 2,068 ft.; S. D. 2,071 ft.
Simms Oil Co.'s No. 1 Coffee, 330 ft. from N and 1,650 ft. from E of Sec. 22, Blk. 33, Twp. 2s, T.&P. ..... 1,550 ft. oil in hole 2,146-56 ft.
E. L. Smith Oil Co.'s No. 2 Coffee, 330 ft. from S and 990 ft. from E of Sec. 15, Blk. 33, Twp. 2s, T.&P.... Shut down 2,053 ft.; running 8-in. casing.
Simms Oil Co.'s No. 2 Coffee, Sec. 22, Blk. 33, Twp. 2s, 1,650 ft. from N, 330 ft. E ..... Rig.
World Oil Co.'s No. 2-C McDowell, Sec. 21, Blk. 34, Twp. 2s, 330 ft. S and 2,310 ft. E of NW cor. ..... Drlg. 485 ft.

**HOWARD COUNTY**

Continental Oil Co.'s No. 2 Clay, Lease 1, 330 ft. N and 990 ft. E of SW cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,928 ft.
Continental Oil Co.'s No. 3-E Clay, 1,650 ft. N and 990 ft. W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur... Location.
Cosden Oil Co.'s No. 6 Roberts-A, 200 ft. N and E of SW cor., Sec. 129, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 1,456 ft.; sulphur water 1,433-46 ft.
Empire Gas & Fuel Co.'s No. 4 Clay, 330 ft. N and 2,310 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 340 ft.
Group No. 1 & Continental Oil Co.'s No. 8-A Settles, 990 ft. N and 2,310 ft. W of SE cor. Sec. 135, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 2,910 ft.
Magnolia Pet. Co.'s No. 1 Snyder, 330 ft. from N and 990 ft. from W Sec. 36, Blk. 30, Twp. 1s, T.&P. R.R. Sur. ..... Rigging up.
Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Shut down 2,927 ft.
Merriwether's No. 1 Smith, 150 ft. from S, 2,490 ft. from W, Sec. 45, Blk. 33 ..... Shut down 1,500 ft.
Midwest Exploration Co.'s No. 5-C Clay, 990 ft. from E and S Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 970 ft.
Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Total depth 261 ft.; set 10-in. casing.
Plymouth Oil Co.'s No. 4 Abrams, 330 ft. from N and 1,650 ft. from W, Sec. 5, Blk. 32, Twp. 2s ..... Top pay 2,480 ft.; shut down 2,519 ft.; plugged back 2,505 ft.; pumped 20 bbls., 15 per cent water, in 24 hrs.; may shoot.
Shell Pet. Corp.'s No. 2 Abrams, Sec. 13, Blk. 33, Twp. 2s, 2,310 ft. from S, 990 ft. from E, T.&P. ..... Top pay 2,135 ft.; pumped 1,025 bbls. 24 hrs.; total depth 2,280 ft.
Simms Oil Co.'s No. 2 Clay, 330 ft. from S, 2,310 ft. from W, Sec. 127, Blk. 29 ..... Drlg. 727 ft.
Ward Oil Co.'s No. 21 Roberts, 2,310 ft. N and 990 ft. E of SW cor. of Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ... Shut down 1,708 ft.

**HUDSPETH COUNTY**

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor., Sec. 19, Blk. E ..... Top pay 2,851 ft.; underreaming 10-in. casing 2,600 ft.
George Richardson's No. 1 Paxton, 2,640 ft. from N and W, Sec. 9, Blk. 16 ..... Shut down 205 ft.
Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Shut down 2,760 ft.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 18 ..... Shut down 3,140 ft.

**IRION COUNTY**

Beesley's No. 1 Sawyer Cattle Co., 1,320 ft. N and E of SW cor. Sec. 3,032, Blk. 24, H.&T.C.R.R. Sur. ..... Spudded and shut down 190 ft.
Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W, Subd. 8 ..... Shut down 1,105 ft.
Carl Cromwell's No. 1 Tankersley, 2,490 ft. from S and E, Sec. 1,219, T.C.R.R. Sur. ..... Fishing 710 ft.
Cromwell et al's No. 1 Fuller, 2,134 ft. N and 631 ft. W of SE cor., Sec. 81, Blk. 1, H.&T.C.R.R. Sur..... Fishing 710 ft.
Dennys & Andrews' No. 1 Tankersley, 2,660 ft. from W, 600 ft. from S of Sec. 4, H. N. Wallace Sur. ..... Fishing 529 ft.
Kingwood Oil Co. et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. ..... Show gas 7 656 ft.; set 4½-in. casing 7,550 ft.; drlg. 7,835 ft.
J. A. Starkweather's No. 1 Lindley, Sec. 1,160½ ,900 ft. from S, 150 ft. from E, H.&T.C. Sur. on E ..... Shut down 1,280 ft.
P. H. Williams' No. 1 Ash, C of Sec. 20, Washington County ..... Drlg. 5,000 ft.

**JONES COUNTY**

J. H. Adsit et al's No. 1 Swenson, C of NE of SE, Sec. 192, B.B.B.&C. Sur. ..... Shut down 2,508 ft.
Continental Oil Co.'s No. 1 Phillips, 440 ft. from S and 330 ft. from E of Phillips 80-acre tract, Sec. 16, Blk. 19, T.&P. ..... Location.
Cosden-Herbert et al's No. 3 Bickley, 330 ft. N and W of SE cor. of S half NW, Sec. 50, Blk. 18 ..... Rig.
Cranfill-Reynold's No. 1 Stevens, 990 ft. from N and 3,630 ft. from W of John McMullen Survey 337 ..... Drlg. 1,725 ft.
Mid-Tex Oil & Gas Co.'s No. 1 King ..... Shut down 1,520 ft.
Mid-Tex Oil & Gas Co.'s No. 1 Minter, 1,513 ft. from W and 765 ft. from N of Sec. 41, Blk. 15, T.&P. Sur. ... Shut down 1,904 ft.; underreaming 8-in. casing.
Shabeen et al's No. 1 King ..... Underreaming 6-in. casing; total depth 2,061 ft.; 800 ft. fluid in hole.

**KENT COUNTY**

California & Atlantic's No. 1 Wallace, 330 ft. from S and W Sec. 60, Blk. G. W.&N.W.R.R. Sur. ..... Spudded and shut down.
White & Smith's No. 1 Pursley estate, 1,320 ft. from E and 2,640 ft. from S of Sec. 3, Blk. H, H.&T.B. ..... Fishing 300 ft.

**KIMBLE COUNTY**

C. L. Bryant et al's No. 1 Lambert, 700 ft. from N and W line of P. Lotta Sur. ..... Shut down 800 ft.
McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. ..... Shut down 1,350 ft.

**LOVING COUNTY**

Humble Oil & Ref. Co.'s No. 1 Kloh, 2,640 ft. N and W Sec. 35, Blk. 55, Twp. 2, T.&P.R.R. Sur. ..... Drlg. 3,700 ft.
Independent O. & G. Co.'s No. 1 Wheat, 330 ft. each way from W cor. of Sec. 85, Blk. 1, W.&N.W. ..... Drlg. 2,895 ft.
Lockhart Co.'s No. 3 Allen, 330 ft. from NE, 1,650 ft. from NW, Sec. 82, Blk. 33, H.&T.C. ..... Top salt 725 ft.; cem. 6-in. casing 4,025 ft.; drlg. 4,165 ft.
Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. ..... Location.

**LYNN COUNTY**

Lubewell Oil Co.'s No. 1 May, 2,310 ft. S, 2,310 ft. W, Sec. 10, Blk. 7, E.L.&R.R. ..... Shut down 190 ft. for casing.
George McCamey's No. 1 Edwards, 165 ft. N and E, Sec. 5, Blk. 2, L.S.&W. Sur. ..... Top salt 2,140 ft.; oil show 1,580-90 ft.; hole full sulphur water 4,730 ft.; set 6-in. casing 4,733 ft.; drlg. 4,850 ft.

**MENARD COUNTY**

Cromwell & Duffey's No. 2 Winslow, 250 ft. S and E of NW cor. NE of NE Sec. 36, J. H. Gibson Sur. ..... Drlg. water well.
I. C. Barnett's No. 2 Callan, Sec. 1, 1,050 ft. from S, 1,190 ft. W ..... Est. 10 bls. show oil from 1,132-52 ft.; underreaming at 1,152 ft.; to deepen; probably will shoot sand.

**MITCHELL COUNTY**

California Co.'s No. 8 Foster Lease 1, 1,100 ft. S and 990 ft. W NE cor. Sec. 6, Blk. 29, Twp. 1s, T.P. R.R. Sur. ..... Drlg. 100 ft.
Gibson & Johnson's No. 2 Scott, 150 ft. N and 2,490 ft. W of SE cor. Sec. 7, Blk. 19, Lavaca Navigation Co. ..... Spudded and shut down 720 ft.
Morrison et al's No. 1 Morrison, Sec. 1, Blk. 29, Twp. 1s, 2,390 ft. from N, 660 ft. from E, T.&P.R.R. Sur. .... Moving in material.
Morrison et al's No. 2 Morrison, 2,390 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. 1n, T.P. R.R. Sur. ..... Location.
Seiger's No. 1 Scott, C of NE of SW, Sec. 36, Blk. 17, S.P.R.R. Sur. ..... Shut down 730 ft.
Texas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ..... Fishing 4,454 ft.

**NOLAN COUNTY**

Gibson & Johnson's No. 1 Bond, 1,320 ft. from N and 1,980 ft. from E of Sec. 42, Blk. 20, T.&P. ..... Drlg. 2,725 ft.
Phillips Pet. Co.'s No. 1 Plunkett, 330 ft. N and W of SE cor. NW, Sec. 66, Blk. 23, T.&P. Sur. ..... Underreaming 4,425 ft.

**PECOS COUNTY**

Amerada Pet. Corp.'s No. 1 University, 990 ft. from S, 2,310 ft. W, Sec. 13, Blk. 18, University Land ..... Location.
Arkansas Fuel Oil Co.'s No. 1-A University, 1,650 ft. from S and W of Sec. 32, Blk. 16 ..... Location.
Anna Bell Oil Co.'s No. 1 Hollingsworth, 150 ft. N and W of C Sec. 24, Blk. 11, H.&G.N.R.R. Sur. ..... Moving in material.
E. W. Bateman's No. 1 Cunningham, 330 ft. from S and W line of NE Sec. 34, Blk. 11 ..... Shut down 1,395 ft.
Black & Dittman's No. 1 Pecos Valley, 160 ft. from SW and SE lines Sec. 34, Blk. 3, H.&T.C.R.R. Sur. ..... Rigging up.
Buell & Hagan's No. 1 Byrne, 990 ft. from N and 2,310 ft. from E of Sec. 54, Blk. 10, H.&G.N.R.R. Sur. .... Drlg. 710 ft.
California Co.'s No. 6 Smith, Lease No. 1, 1,700 ft. N and 330 ft. W of SE cor. Sec. 37, Blk. 194, G.C. &S.F.R.R. Sur. ..... Derrick
California Co.'s No. 2 Tippett, 2,016 ft. from S and 1,040 ft. from E of Sec. 2, D.F. Robertson Sur. ..... Temporarily abandoned.
Cardinal Oil Co.'s No. 1 Tippett, 330 ft. N and W of SE cor. Sec. 36, Blk. 12, H.&G.N.R.R. Sur. ..... Location.
Continental Oil Co.'s No. 2 University, 330 ft. S and 1,650 ft. E of NW cor. of Sec. 6, Blk. 17, University Land ..... Drlg. 900 ft.
Continental Oil Co.'s No. 3 University, 330 ft. S and 2,371 ft. E of NW cor. Sec. 6, Blk. 17, University Land ..... Drlg. 900 ft.
Continental Oil Co.'s No. 6 University, 330 ft. S and 2,031 ft. E of NW cor. of Sec. 6, Blk. 17, University Land ..... Cellar.
E. W. Bateman et al's No. 1 Cordova, 3,490 ft. from N and 1,515 ft. from W Sec. 29, Blk. 11, H.&G.N.R.R. Sur. ..... Shut down 1,425 ft.
Crosby Prod. & Royalty's No. 3 Smith, 330 ft. from S and W line, Sec. 24, Blk. 194 ..... Cellar.
Cosden Oil Co.'s No. 1 McDonald, 350 ft. from N and E of Sec. 1, H.E.&W.T. ..... Drlg. 730 ft.
Cranfill & Reynolds' No. 1 Masterson, SW cor. Sec. 104, Blk. 10 ..... Top pay at 1,249 ft.; second pay 1,268 ft.; 18½ bbls. oil.
Dixie Oil Co.'s No. 1 McKinzie, 3,300 ft. from N and 2,025 ft. from W of Sec. 15, Blk. 604, G.C.&S.F. ..... Moving in material.
Freeman et al's No. 1 Pecos Valley, 150 ft. from NW and SW of NE half of S Sec. 36, Blk. 3, H.&T.C. .... Fishing 635 ft.
Harrison & Cromwell's No. 1 White-Baker, 2,310 ft. from S and E, Sec. 42, Blk. 11, H.&G.N.R.R. Sur. .... Oil show 822-27 ft.; drlg. 1,300 ft.
Humble Oil & Ref. Co.'s No. 1 Cunningham, C of SW Sec. 34, Blk. 11, H.&G.N.R.R. Sur. ..... Total depth 1,520 ft.; hole full water 1,430 ft.
Hussman Oil Co.'s No. 1 Esters, 960 ft. from N and 300 ft. E, Sec. 83, Blk. OW, T.M.R.R. Sur. ..... Location.
Independent O. & G. Co.'s No. 1 Phelps, 150 ft. N and W of N half of NE Sec. 36, Blk. 11, H.&G.N.R.R. Sur. ..... Drlg. 1,250 ft.
J. L. Kennedy's No. 1 Roberts, C of Sec. 78, Blk. 3, T.&P.R.R. Sur. ..... Drlg. 2,000 ft.
Sam Kitts et al's No. 1 Sherbino, 330 ft. from N and 990 ft. from W line, Sec. 52, Blk. C-4, G.C.&S.F.R.R... Top salt 975 ft.; shut down 2,490 ft.
Kirby Pet. Co.'s No. 1 Stockton Cattle Co., 330 ft. from N and E Sec. 2, T.C.R.R. Sur. ..... Spudded 10 ft.
Landreth & Dunning's No. 1 McDonald, 330 ft. N and E of SW cor. Sec. 40½, Blk. 12, H.&G.N.R.R. Sur. .... Drlg. 1,565 ft.
Landreth Prod. & Henshaw Bros.' No. 1-E University, 330 ft. N and W of SE cor. W half NE Sec. 13, Blk. 18, University Land ..... Drlg. 800 ft.
Landreth Prod. & Henshaw Bros.' No. 2-E University, 330 ft. S and E of NW cor. of W half of NE Sec. 13, Blk. 18, University Land ..... Drlg. 10 ft.
Landreth & Henshaw's No. 3 University-G, 330 ft. S and W of NE cor. of SE SW Sec. 31, Blk. 16 ..... Top pay 972 ft.; 75 ft. oil in hole; Fishing 1,500 ft.
Landreth Prod. Corp. et al's No. 1-I University, 330 ft. from S and W of NE of NE Sec. 24, Blk. 18 ..... Set 10-in. casing; shut down 1,095 ft.; 2 bbls. oil hourly 960 ft.

Landreth Prod. and Henshaw Bros.' No. 2-I University, 330 ft. S and W of NE Sec. 24, Blk. 18, University Land ..... Cellar.
Landreth Prod. & World Oil Co.'s No. 6-B University, 990 ft. S and W of NE cor. of Sec. 13, Blk. 18, University Land ..... Drlg. 1,505 ft.; top lime 1,305 ft.
Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ..... Total depth 1,445 ft.
Mazda Oil Co.'s No. 1 Cordova Union Land Co., 2,310 ft. from N and 990 ft. from E of Sec. 102, Blk. 11, H.&G.N. ..... Spudded and shut down 180 ft.
Merrick-Bristow's No. 1 Neville, 330 ft. from S and W, Sec. 42, Blk. 12, H.&G.N.R.R. Sur. ..... Top salt 645 ft.; shut down 1,670 ft.; will deepen.
R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. ..... Show oil 1,216 ft.; show oil 1,408 ft.; pulling 8-in. casing; total depth 1,428 ft.
Moncrief's No. 1 Sullivan, 150 ft. E of C of SW Sec. 58, Blk. 11, H.&G.N.R.R. Sur. ..... Drlg. 450 ft.
George Morgan's No. 2 Toborg, Sec. 539, Blk. 1, 150 ft. S of Moncrief's No. 1 ..... Show oil 1,208 ft.; total depth 1,285 ft.; plugged back to 1,280 ft.; flowing 3 bbls. daily.
H. T. O'dneal's No. 1 Power, 2,640 ft. from N and 150 ft. from W, Sec. 1, Blk. 132, T.&St.L.R.R. Sur. ..... Running 10-in. casing; drlg. 115 ft. casing.
J. D. O'Mara's No. 1 Bennett, Sec. 592, 1,460 ft. from S, 150 ft. from E, G.C.&S.F. ..... Fishing 875 ft.
J. D. O'Mara's No. 1 Streety, C of Sec. 1, W. P. Howard Sur. ..... Shut down 1,410 ft.
Pecos Crude Oil Pur. Co.'s No. 4 Pecos Valley, 770 ft. from SW and 1,320 ft. from SE of W Sec. 22, Blk. 10, H.&G.N.R.R. Sur. ..... Location.
Phillips Pet. Corp.'s No. 3 Pryor, 365 ft. from N and 440 ft. from W of Sec. 78, Blk. OW, T.M.R.R. ..... Total depth 1,389 ft.; top pay 1,380 ft.; 55 bbls. 8 hrs.
Rector Oil Co.'s No. 1 State Land, 330 ft. N and W of SE cor. Sec. 106, Blk. 3, H.&G.N.R.R. Sur. ..... Drlg. 1,785 ft.
M. M. Rowan's No. 1 University, NE Sec. 25, Blk. 16 ..... Total depth 2,490 ft.; shut down.
Shell Pet. Corp.'s No. 1 Percival, 330 ft. from N and E of SE Sec. 199, Blk. 3, I.&G.N. ..... Location.
Sides & Cloyd's No. 2 Blackstone & Slaughter, C NW of Sec. 34, Blk. A-2, T.&C.R.R. Sur. ..... Shut down 362 ft.
Skelly Oil Co.'s No. 1 University, 330 ft. from S and W of N half SE Sec. 31, Blk. 16 ..... Drlg. 1,170 ft.
Stine & Griffith's No. 1 McKinzie, 1,320 ft. from S and W, Sec. 9, Blk. 603, G.C.&S.F.R.R. Sur. ..... Location.
Taylor-Link's No. 6 University, 330 ft. from N and 330 ft. from E of W half of SE, Sec. 13, Blk. 18 ..... Fishing 1,045 ft.
Taylor-Link Oil Co.'s No. 9 University, 990 ft. N and 2,310 ft. W of SE Sec. 31, Blk. 16, University Land.. Drlg. 1,065 ft.
The Texas Co.'s No. 1 Graef, 4,758 ft. from W and 908 ft. from S of Sec. 44½, Blk. 12, H.&G.N. ..... Shut down 245 ft.
Transcontinental and Arkansas Nat'l Gas Co.'s No. 1 Matthews, 330 ft. from S., 1,060 ft. from E, Sec. 10, Blk. 194 ..... Location.
Trees Oil Co.'s No. 3 Trees, 330 ft. from S and W of Sec. 90, Blk. 3, H.&G.N. ..... Machine.
World Oil Co.'s No. 2 University, Sec. 31, Blk. 16, 330 ft. from N, 2,310 ft. E ..... Drlg. 405 ft.
World Oil Co.'s No. 1-C University, 1,650 ft. from N, 990 ft. W, Sec. 7, Blk. 20, University Land ..... Location.
Zoch et al's No. 1 Cordova Union Land Co., C of SW Sec. 81, Blk. 11, H.&G.N. ..... Show oil 670-75 ft.; show gas 730-35 ft.; drlg. 1,735 ft.

**PRESIDIO COUNTY**

L. C. Brite's No. 4 Brite, 271 ft. from N, 1,183 ft. from E, Sec. 245, Blk. 4 ..... Shut down 670 ft.
Eastland Oil Co.'s No. 1 Tootle, C Sec. 17, Blk. 1, D.P. R.R. Sur. ..... Spudded; shut down.
T. P. Coal & Oil Co.'s No. 1 Bogel, 330 ft. S and W, Sec. 83, Blk. 3, G.H.&S.A. ..... Gas show 2,810 ft.; drlg. 3,437 ft.

**REAGAN COUNTY**

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 350 ft. W of NE cor., Sec. 1, Blk. 2, University Land.. Top pay 2,903 ft.; 1,000 ft. fluid in hole; top pay 6,807 ft.; shut down 8,000 ft. for 6-in. casing.
Big Lake Oil Co.'s No. 4-C University, 1,120 ft. from N and 1,096 ft. from E of Sec. 1, Blk. 2 ..... Showing oil and gas at 8,220 ft.; flowed 303 bbls. in 24 hrs.; total depth 8,220 ft.
Texon Oil & Land Co.'s No. 2-B University, 4,655 ft. from S, 250 ft. from W Sec. 36, Blk. 9 ..... Drlg. 2,476 ft.
Texon Oil & Land Co.'s No. 3-B University, 2,240 ft. from S, 920 ft. from W Sec. 36, Blk. 9 ..... Drlg. 2,576 ft.
Thomas & Brann et al's No. 1 Hughes, C NE of Sec. 7, Blk. 1, T.C.R.R. Sur. ..... Top salt 1,085 ft.; drlg. 2,295 ft.

**REEVES COUNTY**

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W. of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Shut down 2,990 ft.
H. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. ..... Drlg. 75 ft.
Black & Fink's No. 1 Brooks, 1,980 ft. N and 660 ft. W, Sec. 16, Blk. 59 ..... Drlg. 605 ft.
Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor., Sec. 23, Blk. 51 ..... Total depth 5,191 ft.; show oil 5,191 ft.
David R. Thompson's No. 1 A. A. Eddins, Sec. 9, Blk. C-1 ..... Drlg. by casing 5,490 ft.

**RUNNELS COUNTY**

Gibson & Johnson's No. 1 Johnson, 2,310 ft. N and 1,650 ft. W of SE cor., Sec. 150, E.T.R.R. Sur. ..... Spudding.
Gibson & Johnson's No. 2 Serratt, 2,310 ft. from S and 1,650 ft. from E of Sec. 150, E.T.R.R. Sur. ..... Derrick.
Gibson-Johnson's No. 1 Woods, Sec. 529, 2,600 ft. from S and 300 ft. from E, T. T. Williams Sur. ..... Total depth 3,575 ft.; underreaming 2,338 ft.
H. E. Lamar's No. 1 Long, 2,310 ft. N, 6,900 ft. E Sec. 262 ..... Shut down 1,375 ft.
McLean's No. 1 Clayton, 150 ft. from N line, 270 ft. from W line of Sec. 132 ..... Shut down 1,185 ft.
Vacuum Oil Co.'s No. 4 McMillan, 555 ft. S and 717 ft. W of NE cor., Lot 22, Domingo Diaz Sur., No. 532.. Location.

**SCHLEICHER COUNTY**

Interstate's No. 1 Whitten, 1,320 ft. from N and W, Sec. 35, Blk. LL, T.C.R.R. Sur. ..... Hole slopped over with oil at 4,925 ft.; made one good flow; set 6-in. casing 5,050 ft.; total depth 5,565 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A.R.R. ..... Drlg. 1,000 ft.

**SCURRY COUNTY**

Byrd & Harmon's No. 1 Murphy, Jr., 330 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. ..... Shut down 1,372 ft.
Camp Spring Oil & Ref. Co.'s No. 3 Guinn, 1,300 ft. from S, 300 ft. from E, Sec. 12, Blk. 3, H.&T.C.R.R. Sur ..... Drlg. 2,980 ft.
Cottingham & Briscoe's No 1 Trees, C SE Sec. 147, Blk. 97 ..... Sulphur water 3,390 ft., total depth.
I. B. Mimms et al's No. 1 J. J. Koonsman' Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down 300 ft.
G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 4,070 ft.
E. L. Smith Oil Co.'s No. 1 Moore, 1,320 ft. from S and W Sec. 379, Blk. 97 ..... Drlg. 250 ft.

**STERLING COUNTY**

Sherwood B. Owen's No. 1 Tweedle, 1,980 ft. from N and 1,320 ft. from E of Sec. 10, Blk. T, T.&P. ..... Drlg. 1,040 ft.

**SUTTON COUNTY**

Independent Oil & Gas Co.'s No. 1 Willson, Sec. 30, Blk. A, 1,650 ft. from N, 2,310 ft. from W ..... Rig.
Independent & Sun Oil Co.'s No. 1 Allison, Sec. 39, Blk. A, 200 ft. from N and 1,000 ft. from W ..... Drlg. 3,775 ft.

**TAYLOR COUNTY**

Adams and others' No. 1 Lowe, 150 ft. from N and W of Sec. 19, League 120, Guadalupe Sur. ..... Shut down 1,990 ft.
Condor Pet. Co.'s No. 1 Allen, C of NW Sec. 220, Blk. 64, H.T.C.R.R. Sur. ..... Location.
John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ..... Show oil 4,917 ft.; underreaming 5-in. casing 5,073 ft.; total depth 5,079 ft.

**TERRELL COUNTY**

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.K.&T.R.R. Sur. ..... Shut down 1,150 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Drlg. 2,925 ft.
Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.R.R. Sur. ..... Shut down 880 ft.
Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F.R.R. ..... Drlg. 571 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Shut down 625 ft.

**TERRY COUNTY**

Kingsland, O. P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ..... Fishing baller 5,080 ft.

**TOM GREEN COUNTY**

Cannon et al's No. 1 Rust, 990 ft. S, 990 ft. W of NE cor. of Sec. 745 ..... Rig.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ..... Shut down 2,430 ft.
Fuhrman Pet. Co.'s No. 1 Wardlaw, 2,650 ft. from N and E of Sec. 6, Blk. 17, H.&T.C. ..... Drlg. 700 ft.

**UPTON COUNTY**

Gulf Prod. Co.'s No. 3-B Hughes, 160 ft. N and 161 ft. W of most southerly SE cor. of their 200-acre lease "B" out of Wm. Teen Sur. ..... Location.
Pure Oil Co.'s No. 2 Hughes, 150 ft. S and 767 ft. E of NW of their 300-ac., Sec. 4, Wm. Teer Sur. ..... Drlg. 610 ft.
Pure Oil Co.'s No. 4 Hughes, Sec. 4, 330 ft. S and E SW cor. Snowden & Sweeney lease ..... Location.
Snowden & McSweeney's No. 3 Hughes, 330 ft. from S and W of 80-ac. lease, Sec. 4, Wm. Teer Sur. ..... Location.
Texas Pacific C. & O. Co.'s No. 14-A Lane, 990 ft. N and 2,310 ft. W SE cor. Sec. 5, G.C.&S.F. ..... Location.
Texon-Continental's No. 2 Sherk, 430 ft. from N line, 330 ft. from W line, Sec. 35, Blk. 1 ..... Rig completed.
T. P. Coal & Oil Co.'s No. 1-D Lane, 430 ft. from S, 330 ft. W Sec. 36, Blk. 1 ..... Shut down 40 ft.
T. & P. Coal & Oil Co.'s No. 1 Reese, 330 ft. from N and E line, Sec. 2, Blk. 3 ..... Building road.

**VAL VERDE COUNTY**

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,850 ft.
O. O. Owens, No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,700 ft. gas; reset 8-in. 2,513 ft.; reaming; drlg. 5,094 ft.
Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line Sec. 44, Blk. D-8, E.L.&R.R. Sur.. Shut down 1,447 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE, Sec. 47, Blk. Y.. Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 4,009 ft.

**WARD COUNTY**

Alpine Oil & Gas' No. 1 Dakan, 445 ft. from W line, 150 ft. S line, Sec. 11, Blk. 5 ..... Cellar.
E. J. Anderson's No. 1 Johnson, 150 ft. N, 346 ft. E Sec. 7, Blk. 32, H.&T.C.R.R. Sur. ..... Spudded.
Atlantic et al's No. 1 Dorr, 1,730 ft. S, 990 ft. W, Sec. 2, J. Howe ..... Drlg. 510 ft.
Atlantic & Delmar's No. 6 Hayzlett, 2,490 ft. from NE and NW lines Sec. 17, Blk. 5, H.&T.C. ..... Cem. 8¼-in. casing 740 ft.
Atlantic & Delmar's No. 7 Hayzlett, 1,650 ft. from NE and NW of Sec. 17, Blk. 5 ..... Location.
Gulf Prod. Co.'s No. 3 Hutchins, 2,310 ft. from N and 330 ft. from W Sec. 1, Blk. F, G.M.M.B.&A. Sur. ..... Top salt 1,035 ft.; underreaming 10-in. casing; total depth 1,124 ft.
Gulf Prod. Co.'s No. 7 O'Brien, 330 ft. S and W Sec. 22, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 2,725 ft.; 1,800 ft. oil in hole at 2,618-25 ft.
Gulf Prod. Co.'s No. 8 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW Sec. 18, Blk. 5, H.&T.C. ..... Show gas 1,960-70 ft.; filling up with sulphur water 2,520-27 ft.; shut down 1,000 ft. salt water at 2,545 ft.
F. H. E. et al's No. 1 Wristen, 990 ft. from S and W lines of Sec. 26, Blk. B-28 ..... Top salt 700 ft.; drlg. 2,390 ft.
E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ..... Underreaming 10-in. casing; water 1,245 ft.; drlg. 1,600 ft.
Mid-Continental's No 1 Conway, 2,316 ft. E, 922 ft. S, Sec. 23, Blk. B-29, Public School Land ..... Location.
Penn & Atlantic's No. 2 Bennett, 2,310 ft. S line, 1,650 ft. W line, Sec. 16, Blk. 34, H.&T.C.R.R. Sur. ..... Total depth 260 ft.
Penn & Atlantic's No. 1 Cooper, 330 ft. from NE and 990 ft. from NW of Sec. 43, Blk. 34, H.&T.C.. Ready to spud.
Shipley's No. 3 Hayzlett, 2,490 ft. S, 1,470 ft. W Sec. 17, Blk. 5 ..... Top salt 725 ft.; 2 bbls. oil 2,489-2,500 ft. sandy lime; shot 270 qts. 2,465-2,500 ft.; cleaning out.
Shipley et al's No. 4 Hayzlett, 2,050 ft. NW of SE and 2,420 ft. NE of SW line of Sec. 17, Blk. 5, H.&T.C. R.R. Sur. ..... Top salt 720 ft.; shut down 2,546 ft.; plugged back 2,538 ft.
Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17 is N and S 220 ft. S and 1,910 ft. W Sec. 17, Blk. 5 ..... Plugged back from 2,546 ft. to 2,538 ft.; shot 90 qts. 2,473-93 ft.; no results.
Shipley et al's No. 1 Monroe, 330 ft. SE SW, Sec. 3, Blk. 1 ..... Skidded rig 35 ft. N; spudding new hole.
Sun Oil Co.'s No. 2 Sealy, 330 ft. from N and E of Sec. 88, Blk. F, G.M.M.B.&A. Sur. ..... Total depth 570 ft.

**WINKLER COUNTY**

V. T. Bolin's No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ..... Top salt 1,300 ft.; shut down 2,832 ft.
Bashara et al's No. 2 Bashara, 990 ft. from S. 2,310 ft. from E, Sec. 17, Blk B-3, Public School Land ..... Drlg. 1,590 ft.
Cinderella Syndicate's No. 1 Hendricks, 330 ft. N, 1,650 ft. W Sec. 42, Blk. 26, Public School Land.... Total depth 150 ft.; building rig.
Humble O. & R. Co.'s No. 1-D Hendricks, 330 ft. from S, 2,310 ft. from W of Sec. 41, Blk. 26 ..... Top lime 2,770 ft.; top pay 2,812 ft.; total depth 2,900 ft.; flowing 629 bbls. fluid.
Humble Oil & Ref. Co.'s No. 2 Walton, 2,310 ft. from N and W of Sec. 47, Blk. 26 ..... Drlg. 1,915 ft.
Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Top brown lime 2,510 ft.; shut down 3,450 ft.
Sun Oil Co.'s No. 1 Sealy, 2,310 ft. N line, 330 ft. from W line Sec. 52, Blk. F, C.M.M.B.&A. Sur. ..... Rigging up standard tools.

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## TECHNICAL QUESTIONS

(Continued from Page 94)

quantity of sulphuric acid and then run the oil into a mixing chamber, where the clay is thoroughly incorporated, from which the mixture is pumped through hot tubes. The hot oil is cooled, naphtha added, about 40 to 50 per cent, and run through a filter press to remove the clay. The pressed oil is further diluted with naphtha to make a mixture having a gravity between 45 and 48 A.P.I., then it passes through a refrigerating system where the oil is cooled to the required temperature for the desired pour-point. The chilled mixture next goes to the centrifuges or to wax presses. The wax free mixture must then be distilled for the separation of the naphtha. In most plants the product at this stage will be the finished bright stock but some refiners give the product after distilling off the naphtha, another filtering through fuller's earth.

Usually, after drawing off most of the acid, the small quantity of acid remaining in the oil will be completely removed by the clay.

It is not clear just where in this process you make use of the naphtha.

## KENTUCKY-TENNESSEE

(Continued from Page 76)

Phelon and later by Vincent Steele. It is believed to be an extension of the Barnett Creek Pool. The Buford territory is several miles west of the old Ambrose-Weller Pool that started the rapid hunt for oil in that portion of Ohio County. Many prolific pools have been uncovered in that part of Ohio County since the Ambrose-Weller Pool was opened. Dry holes are found between most all the producing pools of which there are quite a number. The Stray sands are showing the larger producers since the first Stray sand was found on the Ellis Bartlett farm, southwest of Taffy. This sand also developed many large wells in the Morgan and Barnett Creek Church Pool, and now comes the new Buford Pool with very large producers in the Stray sand, and many of these pools are yet untouched by the drill in many sections of Ohio County, to say nothing of the adjoining counties that have been only partially tested. The Niagara Pool, in Henderson County, is another interesting spot where excellent wells are being found, while to the south of Henderson County, good gas volume is found in wells in the Sebree Field of Webster County. The Greenville Field in Muhlenberg County and the good prospects in Butler, Christian, Logan, Hopkins and other counties in the southwestern part of the State give the operators plenty of drillable territory to keep them busy for a long period.

A summary of the week's work in Kentucky shows 25 completions, 19 producers with an initial production of 1,553 bbls., 3 dry holes and 3 gas wells.

| County— | Comp. | Oil | Prod. | Dry | Gas |
|---|---|---|---|---|---|
| Ohio | 18 | 13 | 1,168 | 3 | 2 |
| Daviess | 6 | 6 | 385 | 0 | 0 |
| Jackson | 1 | 0 | 0 | 0 | 1 |
| Total | 25 | 19 | 1,553 | 3 | 3 |

### Ohio County Wells

In the Morgan Pool, just northwest of the Barnett Creek Church Pool, the Rex-Pyramid Oil Co.'s No. 10 on the C. W. Morgan farm is credited with a production of 150 bbls. Same company's Nos. 16 and 17 on the Sallie Hoover farm, midway between the Morgan and Barnett Creek Pools, are rated good for 60 and 80 bbls. respectively. On the C. M. Wade farm, in the Barnett Creek Church Pool, and adjoining the Sallie Hoover to the northeast, the Kemrow-Cumberland Petroleum Co.'s No. 9 produced 100 bbls. initial from the Stray sand.

The Ohio Oil Co.'s No. 4 on the Eula Henning farm, in the Whittaker Pool, produced 18 bbls. initial.

James C. Ellis and others' No. 1 on the Evans 80 acres in the Colyer Pool, one of the older producing pools, produced 35 bbls. initial from a total depth of 570 feet. In this hole a string of 440 feet of casing was set, and the pay sand was found from 449-66 feet.

Chester Oil Co.'s No. 8 on the M. Medcalf farm in the Deanfield Pool, produced 30 bbls. initial. In this well a string of 660 feet of casing was set, producing from 677-95 feet which was the total depth.

C. Claypool and others' No. 4 on the William Wade 50 acres in the Ralph Field, proved to be a dry hole at 540 feet.

Hupp and Duff drilled a dry hole in No. 3 on the E. S. Dunn, also a dry hole in No. 20 on the Clyde Bartlett farm in the Barnett Creek Church Pool.

Near Fordsville, Doctor Sirman drilled in another nice gas producer in No. 2 on the Cobb heirs farm. Missouri-Kansas Pipe Line Co. also brought in a good gas well in No. 2 on the Reat Haynes farm in the Deanfield area.

In the Friendship Church Pool, same county, H. L. Ogle and others' Nos. 17, 18, 19, 20 and 21 on the Pate Royal farm, produced initially 35, 35, 40, 45 and 40 bbls. respectively. This has proved a very productive lease, at comparatively shallow depths, similar to Doctor Sirman's lease in the immediate vicinity where around 30 wells were drilled. One was drilled to the Barlow sand, then came a well to produce from the Jett sand, and some of the wells produced as high as 300 bbls. initial. These wells are on the Nancy Farmer farm.

### Daviess County Wells

Evans and Garrison have made another good strike in their No. 7 on the Davis heirs farm, in the Utica Pool of Daviess County, 200 bbls. initial, and their No. 3 on the I. J. Clark farm, in the same area, produced 25 bbls.

In the Red Hill Pool, W. C. Clay, agent, drilled in a second test on the Goldie Ambrose farm for 100 bbls. initial. In the same pool, Duncan, Raydure and Young's No. 3 on the M. D. Yeiser farm, is reported good for 30 bbls. initial.

Robbins & Stimson's No. 6 on the J. W. Fireline 68-acre farm, in the Jones Pool, southwest of Whitesville, produced 15 bbls.

Eastern Gulf Oil Co.'s No. 1 on the Ethel Chapman 82-acre farm, in the Jones Pool, is a 15-bbl. pumper. In this well a string of 648 feet of casing was set, pay sand from 656-65 feet, total depth of hole 670 feet.

### Jackson County

In the eastern part of Kentucky, the Petroleum Exploration Co. brought in a second well on the Warfork Land Co.'s tract in Jackson County, rated good for an open flow of 1,039,680 feet. No. 1, brought in some time ago, produced a flow of 260,000 feet. These two gas wells make that part of the tract look inviting for gas and also for possibilities of oil. Several years ago the Pure Oil Co. leased the Warfork land and drilled four or five holes with no satisfactory results so far as striking oil was concerned, although a couple of the holes showed a small gas volume. When the tract was given up it was later on leased by the Petroleum Exploration Co.

### Field Pickups

There are five known producing gas and oil sands in the western Kentucky Field, the Stray, which is the first and most shallow sand in the field, then comes the Jett, followed by the Jones, the Jackson and finally the Barlow sand. The Jackson has never produced to any extent in oil, but has developed a number of fairly good gas wells. The oil is found mostly in the Stray, Jett, Jones and Barlow sands, and a few wells have found oil in the Bethel sand which lies about 100 feet below the Barlow. The Mississippi lime has shown a few wells in various parts of the field, but has been called the McCloskey sand, being similar to that formation in Lawrence County, Illinois, where the sand was named after the landowner.

Bob Hall and R. E. Mortimer, of Tulsa, are looking over the Owensboro, Ky., Field with a view of getting a foothold in the field.

Petroleum Exploration Co. is starting well No. 3 on the Warfork Land Co.'s lease in Jackson County, in the eastern part of the State. Same company is drilling No. 1 Gilbert Baker farm, and No. 1 on the Lillie Peters farm, in Clay County.

Missouri-Kansas Pipe Line Co. is drilling on the Richards farm, 500 feet from its gas well on the Lester farm, in Hopkins County. Same company failed to find anything worth while in the Jett, Jackson, Stray and Barlow sands in No. 1 on the L. D. Phillips farm, in the Pellville district of Hancock County and will make a deeper test of it.

In Daviess County, Hupp and Duff are drilling on the Southwestern Title & Trust Co.'s 28 acres, and the Creek Drilling Co. is drilling on the same company's 90-acre tract.

## CALIFORNIA FIELDS

(Continued from Page 64)

was brought in flowing 3,050 bbls. daily from 3,405 feet. The next well scheduled for completion by the Barnsdall and Rio Grande is No. 10 Bell Luton, as drilling has been finished at 3,387 feet preparatory to early completion. Both of these wells were permitted to be finished in conformity with the Elwood agreement but must of course be restricted in conjunction with other previous completions. Other wells which will be permitted to be finished prior to the expiration of the curtailment agreement are Nos. 11 and 14 on the Bell Luton lease of the Barnsdall and Rio Grande, the Honolulu Consolidated's well No. 1 on tideland drilling permit No. 90 and C. J. Mahoney's well No. 1 on permit No. 91. These wells will be allowed to produce immediately upon completion because of the drainage factor and lease requirements which call for necessary offsets to producing wells. Nos. 12 and 17 on the Bell Luton lease of the Barnsdall and Rio Grande, well No. 2 on tideland permit No. 90 may also be completed but will not be permitted to produce until after expiration of the present agreement on February 1, 1930. H. P. Grimm, who, in addition to regulating production at Santa Fe Springs and Ventura Avenue, is also vested with the customary duties and powers at Elwood. Curtailment work was started in the Elwood Field under his supervision early this week and satisfactory progress is being made in reaching the objective, which, in this instance, is a maximum allowable production of 30,000 bbls. a day.

### Kettleman Hills

The most interesting development in the Kettleman Hills Field of Kings County is the probability that the General Petroleum may conclude a preliminary test on No. 2 Oschner in Section 26-22-18, and place this well on permanent production. The potential producer in question has been prepared for production and the hole bottomed at 7,321 feet has been finished with a 4¾-inch oil string carrying 543 feet of 200 mesh screen. No. 2 Oschner has been finished in the face of several lengthy and difficult fishing jobs and the outlook is rather promising for substantial production. It is interesting to note in this connection that the General Petroleum has several crews at work cleaning out a number of pumping wells in the Lost Hills Field of Kern County. These pumpers, which have been shut down for several years, are being returned to production in order that the company may have a sufficient amount of heavy oil to blend with the exceptionally light oil expected to be developed on the Oschner property at Kettleman Hills. No. 2 Oschner, incidentally, will be permitted to remain on production in conformity with the Kettleman Hills agreement, under the terms of which drilling and production activities will be regulated until July, 1931.

No. 1 Felix of the Petroleum Securities in Section 35-21-17, may also be listed for completion in the near future, although this project has been indefinitely suspended at 7,276 feet. Field reports indicate, however, that this suspension will be lifted and work resumed upon completion of an absorption plant which is to be erected on the property early next year. No. 1 Felix is located on fee owned acreage and is therefore not covered in the Kettleman Hills agreement. The Pacific Western Oil Co. has suspended drilling operations on its well No. 27 in Section 34-21-17, in accordance with the terms of the Kettleman agreement. The potential producer picked up the oil sand at 7,423 feet and though not tested out will be considered as a completion by the Department of Interior under that portion of the Kettleman Hills agreement which provides that leases may be issued to operators who pick up the pay and subsequently suspend operations.

## GULF COAST FIELDS

(Continued from Page 57)

dropped off the past week, the average being 178,185 bbls. Figures by fields are:

**Production**

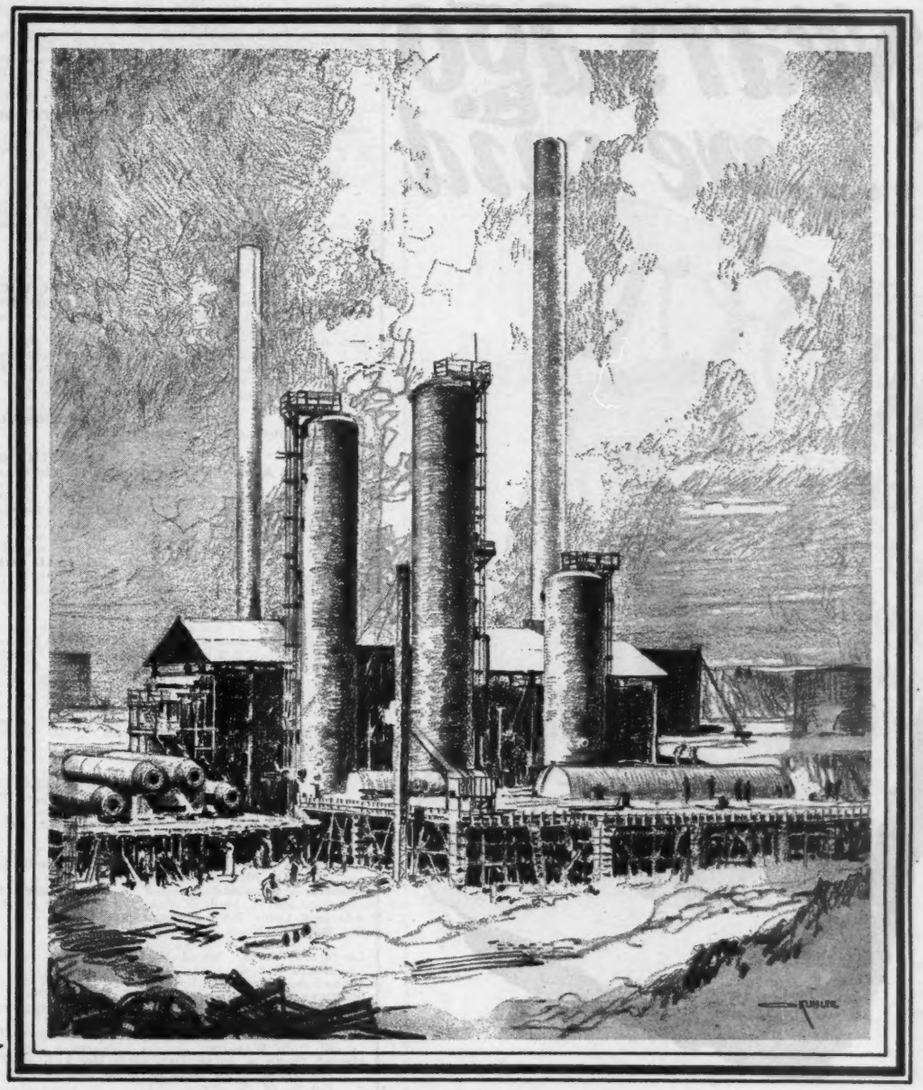
Daily average production of the pools in the Gulf Coast area for the week ending December 7 follows:

| TEXAS | |
|---|---|
| Allen | 10 |
| Barbers Hill | 19,200 |
| Batson | 1,313 |
| Big Creek | 3,317 |
| Blue Ridge | 2,336 |
| Brenham | 146 |
| Boling | 1,293 |
| Clay Creek | 1,590 |
| Damon Mound | 510 |
| DeWalt | 11,824 |
| Fannette | 1,617 |
| Goose Creek | 5,415 |
| Hankamer | 171 |
| High Island | 1,379 |
| Hull | 10,560 |
| Humble | 14,711 |
| Jasper County | 35 |
| Lost Lake | 1,520 |
| Markham | 372 |
| Nash | 520 |
| North Dayton | 550 |
| Orange | 3,076 |
| Orchard | 86 |
| Pierce Junction | 13,002 |
| Port Neches | 1,450 |
| Raccoon Bend | 9,066 |
| Refugio | 14,882 |
| Sheeks | 257 |
| Saratoga | 995 |
| Sour Lake | 2,520 |
| So. Liberty-So. Dayton | 5,665 |
| Spindletop | 20,253 |
| West Columbia | 6,319 |
| Total Texas Coast | 155,960 |
| Week ending November 30 | 159,757 |
| Decrease | 3,797 |

| SOUTH LOUISIANA | |
|---|---|
| Anse La Butte | 45 |
| Bayou Blue | 60 |
| Bayou Bouillon | 120 |
| Black Bayou | 125 |
| Edgerly | 643 |
| Jennings | 1,476 |
| Hackberry | 3,945 |
| Lake Barre | 362 |
| Lake Pelto | 142 |
| Lockport | 3,630 |
| New Iberia | 15 |
| Port Barre | 365 |
| Sorrento | 123 |
| Starks | 476 |
| Sulphur | 6,200 |
| Sweet Lake | 18 |
| Vinton | 3,982 |
| Welsh | 206 |
| White Castle | 292 |
| Total Louisiana | 22,225 |
| Week ending Nov. 30 | 23,218 |
| Decrease | 993 |
| Total Gulf Coast | 178,185 |
| Week ending Nov. 30 | 182,975 |
| Decrease | 4,790 |

## PUBLIC LAND OIL OUTPUT

A total of 22,458,842 bbls. of petroleum; 22,770,394,110 feet of natural gas; 1,022,860 tons of coal, and 47,319,874 gallons of gasoline were produced on public lands in the United States during the fiscal year ended June 30, according to the annual report of the Geological Survey, made public by the Secretary of Interior Ray Lyman Wilbur. The Department derived $3,685,883.35 in royalties, rentals and bonuses from the oil and gas; $414,186.11 from the coal, the report shows. Supervision over oil and gas operations on naval petroleum reserves was continued, the report cites, and the production was 8,116,635 bbls. of petroleum; 7,711,858,000 feet of natural gas, and 24,908,262 gallons of gasoline, on which the royalty value amounted to $1,817,464.45.



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## WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 58)

Stone et al's No. 2 Robert Guinn, Joseph Burleson Sur., 150 ft. to NE and NW lines of 225-acre farm ..... Drlg. 2,020 ft. in Buda lime, depth corrected.

Keen & Malcolm's No. 1 Mollie McNeal, George C. Kimball Sur., 2,500 ft. to W line, 360 ft. to N line, 1 mi. S from old Luling Field ..... Spudded in.

San Antonio Pet. Corp.'s No. 1 Gusave Walkerhagen, Thomas Maxwell Sur., 150 ft. to NW and SW lines, 11 miles W from Lockhart ..... Drlg. in Austin 1,000 ft.

Cranfill & Reynolds' No. 1 Beversdorf, A. Floyd Sur. .... Location.

W. H. Harper's No. 3 Thomas, J. Roberts Sur. ..... Fishing for pipe.

G. R. McIntire's No. 1 J. B. Towns in Isaac Weldon Sur., 4,900 ft. to NE line, 1,350 ft. to SE line of survey ..... Drlg.; T. D. 2,630 ft.; sand in Austin (corrected depth).

**DE WITT COUNTY**

Gibson & McIntyre's No. 1 Wm. Van Roeder ..... T. D. 1,441 ft.; sanded up; washing to bottom.

F. P. Zoch's No. 1 Steinman, John Garelli Sur., 976 ft. from SW line, 1,797 ft. from NW line ..... Location.

H. T. Roe's No. 1 Leinhardt ..... T. D. 1,750 ft.; in shale; shut down for fuel oil.

**DIMMITT COUNTY**

Texas Fuel Gas Co.'s No. 1 City Nat'l Bank (Laxon) ... Setting csg. at 680 ft.

Texas Fuel Gas Co.'s No. 1 Laxon, Sur. 653, 5 miles SW Carrizo Springs ..... T. D. 1,425 ft.; setting csg; test has shown some gas and rainbows of oil.

**DUVAL COUNTY**

Trussell & Partee's No. 1 E. R. Hagest, Sur. No. 271, Blk. 7, 450 ft. E line, 150 ft. S line ..... T. D. 2,435 ft.; depth corrected; abandoned.

National Oil Co.'s No. 2 Ball, Agua Poquita Sur., Blk. 3.. Drlg. 1,500 ft.

F. P. Zoch's No. 1 King, Blk. 25, Howwman Smith subd. W. R. King ranch, Dugo Hinijosa grant, 660 ft. N line, 660 ft. E line ..... Location.

Southern Oil Co.'s No. 1 Welder Wood, Sur. 215 ..... T. D. 750 ft.; standing, waiting on water.

**EDWARDS COUNTY**

A. M. Griffith's No. 1 Wardlaw ..... Shut down 3,000 ft. awaiting orders; expect to drill deeper.

**FAYETTE COUNTY**

Muldoon Oil & Gas Co.'s No. 1 Kemp, M. Smith League . Drlg. 2,110 ft. in sand and shale.

W. J. Kelly's No. 1 Burke ..... Shut down 1,000 ft. acct. titles.

**FRIO COUNTY**

Frank B. LeFeure's No. 1 H. W. and R. L. Eschenburg, Edward Gallagher Sur. No. 789, 3,980 ft. W of SE cor. of Edward Gallagher Sur. No. 788 and 1,320 ft. S of N line of Edward Gallagher Sur. No. 789 ..... To start rigging up soon.

**GOLIAD COUNTY**

Compton Oil Co.'s No. 1 Fromme, Dexter Survey..... Standing.

F. P. Zoch's No. 1 Kaufman ..... T. D. 4,184-98 ft.; showed good volume of gas on drill stem test; setting csg. above sand at 4,184 ft.

Humble Oil & Ref. Co.'s No. A-2 M. C. Spangle, in the H.&G.N.R.R. Sur., 2,000 ft. N, 20 degrees W of No. A-1 M. C. Spangle, 6 miles N of Goliad ..... T. D. 707 ft.; sand; no showing.

Mission Drlg. Co.'s No. 3 Ray, 3 miles E of No. 2. T. D. 4,065 ft.; milled out old cement and plugged back to 4,065 ft. after testing salt water at 4,100 ft.

Mission Drlg. Co.'s No. 1 Lucas, Juan Moya Delgado Sur. ..... T. D. 2,200 ft.; drlg. in gumbo for several hundred feet with only one shale break.

**GONZALES COUNTY**

Acme Oil & Royalty Corp.'s No. 1 Weber, Thomas Wright Survey ..... Coring sand 1,502 ft.

Joyce & Stephens' No. 1 Taylor, in city limits of Waelder ..... Dry and abandoned 600 ft.; approx. depth.

Dunning & Pierce's No. 1 Stahl, Sarah Hendricks Sur., 150 ft. to SE and NE lines of farms ..... Location.

Cranfill & Reynolds' No. 1 F. J. Lang, James Rodney Sur., 150 ft. from N line, 450 ft. from E line ..... Dry and abandoned 3,504 ft.

Adams & Lyles' No. 1 Jackson Sur. ..... Shut down 800 ft.

Joe Bruner's No. 1 R. D. and J. C. Miller ..... T. D. 3,490 ft.; drilling in hard formation.

Linderman Bros.' No. 2 F. H. Frampton in Richard Heath Sur. ..... Skidded rig 40 ft. from No. 1.

Finnell & Elam's No. 1 Robinson, Liverpool Sur. ..... Shut down 1,720 ft.

Hoffman et al's No. 1 Borrer, J. Stewart Sur ..... Shut down 1,025 ft.

Marshall & Moore's No. 1 St. Clair, R. H. Wymn Sur. .... T. D. 1,700 ft.; shut down.

United North & South's No. 1 J. A. Kerr, in James Bowman Sur., 150 ft. S of CNL of tract, 11 miles W from Waelder ..... Drlg. in sandy shale 1,840 ft.

United North & South Dev. Co.'s No. 1 J. E. Preston 120 acres, John Oetkins Sur., 1,350 ft. to S line, 750 ft. of W line ..... T. D. 2,390 ft.; drlg. in shale; tested salt water 2,290-2,326 ft.

L. L. Jones' No. 1 J. F. Kindred, W. W. Barnes Sur., 700 ft. W line, 1,000 ft. S line ..... Location.

Cullen & West's No. 1 E. Menking, Blk. 24, 150 ft. to N and 450 ft. to E line of Blk. 24, 14,050 ft. to NW and NE line of Sur. ..... Drlg. in shale 1,710 ft.

A. G. Keiffer's No. 1 B. B. Dix ..... Drlg. in shale 2,800 ft.

**GUADALUPE COUNTY**

H. H. Weinert's No. 1 A. E. Dowdy, J. C. Darst Sur., 110 ft. S line, 36 ft. E line ..... Location.

Shell Petroleum Corp.'s No. 1 Denmann, Jose de la Baume Sur. ..... Spudded in.

All States Petroleum Co.'s (Carl Bros.) No. 2 Powers, in the John Ussury Sur. ..... Derrick up and rig on ground; have decided since not to drill at this time; will not be further reported unless or until drlg. starts.

H. H. Weinert's No. 2 A. E. Dowdy, J. C. Darst Sur., 100 ft. N line, 36 ft. E line..... Location.

O. W. Killam's No. 1 C. N. Adams, Josias Randolph Sur., 150 ft to NW & NE lines of farm ..... T. D. 2,700 ft.; drlg. in chalk; set csg. 2,660 ft.

J. O. Dore's No. 1 Appling, H. Cottlebur ..... T. D. 1,000 ft.; standing; had light show of oil and gas at 650 ft.

Grayburg Oil Co.'s No. 1 Wells, Jose La Baume ..... T. D. 3,890 ft.; reaming down hole.

Pagenkopf & Kennon's No. 1 Halm, Joseph Kent Sur., 5 miles E of Seguin ..... T. D. 1,872 ft.; in Del Rio clay; showing oil in cuttings and returns.

Adams-Lyles-Walton's No. 1 Zoberoski, Jesus Cantu Sur.. T. D. 2,019 ft.; Steel line measure; set and cemented csg. 2,010 ft.; drilled plug and bailing; bottom of hole in Taylor showing oil.

**HAYS COUNTY**

E. A. Bucklin's No. 1 A. Elsner ..... T. D. 725 ft.; taken over by Chas. Bell and associates; about to resume drilling.

John H. Foster, trustee's No. 1 W. G. Barber, 7 miles SE from Buda ..... T. D. 671 ft.; topped Edwards with show of oil; have not tested; will make another location quarter mile NW; this test first reported as J. A. Lang's No. 1 Barber.

**JACKSON COUNTY**

Wright Bros.' No. 7 Drushell ..... Standing 3,875 ft.

**JIM HOGG COUNTY**

Deep Rock Oil Co.'s No. 1 Kelsey ..... Standing 2,582 ft.
L. M. Holden's No. 4 Jones, 1,320 ft. to north line, 1,320 ft. to east line of 160 acres out of Share 5 "A" Dego Hinojosa Grant ..... Standing 42 ft.

**JIM WELLS COUNTY**

E. W. Ogden's No. 1 G. Farris, M. Peres Sur. ..... T. D. 2,404 ft:; working on water well.

**KARNES COUNTY**

Ruby & Claypool's No. 1 Tom, V. Zepeda Sur., 350 ft. N line, 1,600 ft. E line ..... Shut down in shale at 1,238 ft.
Benedum-Trees' No. 1 S. E. Crews, Britton Odem Sur. .... T. D. 3,860 ft.; shut down in shale; W. O. fuel oil.
Hurador Oil Co.'s No. 1 W. E. Porter ..... Shut down in sandy shale at approx. 3,000 ft.

**KERR COUNTY**

L. R. Page and associates' No. 1 Real ..... T. D. 4,500 ft.; drlg. below 4,500 ft.
D. B. Mascho's No. 1 J. L. Love, C.C.S.D.&R.G.N.G. Sur., Sec. 1,594, 5,280 ft. to N line, 1,000 ft. to W line .... Water well completed; heavy duty cable tool rig on ground (first reported as O. E. Tunstill No. 1 Love Ranch).

**KENDALL COUNTY**

Borgett et al's No. 1 Haag, W. Avery Sur. ..... Completed straight reaming; now replacing spudder with cable tool rig and building derrick; bottom of hole in shale and gumbo 600 ft.
Sterling's No. 1 Willie Werner, 2 miles NW from Borgett No. 1 Haag ..... Drlg. 500 ft.

**KLEBERG COUNTY**

Bowen-Sarles' No. 1 Robert H. Simmons, Sec. 7, King subd. 3 miles W from Ricadro ..... Derrick up; moving in rig.

**KINNEY COUNTY**

Lloyd Oil Co.'s No. 1 G. B. Moore, Survey 117 ..... T. D. 2,710 ft.; in lime flowing sulphur water.
Mardon Oil Co.'s No. 2 Jim Clamp, in the John Winters Sur. No. 346, near No. 1 ..... Moving in cable tools.

**LIVE OAK COUNTY**

O'Neil & Catlett No. 1 Smith, 900 ft. SW line, 150 ft. NW line ..... Drlg. in broken shale at 2,665 ft.
Dr. J. K. Rowan Co.'s No. 1 Lynne Ranch, 171 ft. W of George West ..... Location.
Simmons Oil Co. No. 1 Richard Coquat in Jas. C. Hill survey 2,250 ft. to S. line 1,750 ft. to E. line. 7 miles NE of Oakville ..... Shut down 1,150 ft.

**MAVERICK COUNTY**

Rycade Oil Corp.'s No. 4 J. M. Chittim ..... T. D. 5,583 ft.; drlg. in lime; no showing of consequence.
Rycade Oil Corp.'s No. 5 Chittim ..... T. D. 1,560 ft.; preparing to drill deeper; still producing 4 bbls. 12½ Baume test oil.
Rycade Oil Co.'s No. 3 Chittim, Blk. 7, Sur. 116, I.&G.N. 175 ft. N of No. 1, 10 ft. W, 255 ft. S line ..... T. D. 6,105 ft.; drlg. in lime; still producing light oil and gas.
The Texas Company, 5 miles west Darling Switch ..... T. D. 4,036 ft.; drlg. white limerock; probably Edwards.

**MEDINA COUNTY**

Pan American Petroleum Co.'s No. 1 Harrison, Sur. 799 .. Rigging up.
Pat Armstrong's No. 1 C. W. Butts in George C. Hanson Sur. ..... T. D. 871 ft.; drlg.; showing oil.
Donaldson Oil & Dev. Co.'s No. 2 Adams Co., James Hillemmeyer No. 25 Sur., 500 ft. to E line of Sur., 150 ft. to S line of N half of Sur. ..... Derrick timbers on ground.
T. N. T. Drilling Co.'s No. 1 V. Mangold, I. S. Palmer Sur. No. 20, SE cor. 1 mile from Noonan ..... Drlg. 800 ft. in marl.
Cecil Switzer's No. 1 Zerr, 6 miles west of Hondo ..... Fishing 3,487 ft.
R. C. Hill's No. 1 A. Wuezbach, G. Areola Sur., 500 ft. E line, 600 ft. S line ..... Location.
Carl Brothers' No. 1 Saathoff, A. Smelzer No. 19 Sur... T. D. 910 ft.; taken over by Carl Bros. from A. W. Skogland; shut down.

**MILAM COUNTY**

Service Oil & Gas Co.'s No. 1 Muldrow, L. Taylor Sur., SE cor. ..... Location.
E. L. Chapman's No. 1 Holman in J. J. Liendo Survey.... Abandoned dry 2,225 ft.
Noack-McCarmack's No. 1 D. D. Fowler ..... Dropped from reports; Noack-McCormack are contractors drlg. this test for A. H. Wray.
Hill & Bonwell's No. 1 B. Booker, James Welch Sur. .... Fishing 2,020 ft.
Lloyd Oil Corp.'s No. 1 San Clement, Fokes Sur. ..... Spudded in.
A. H. Wray's No. 1 D. D. Fowler ..... T. D. 1,688 ft:; sidetracked 360 ft. of drill pipe lost in hole; now drlg.

**McMULLEN COUNTY**

Sun Oil Co.'s No. 1 Berry, J. Poitenent Sur. No. 9 ..... Drlg. in sandy shale 1,816 ft.
Cowboys Oil Co.'s No. 1 Shiner, H. M. Brewer Sur. ..... T. D. 2,280 ft.; shut down.

**NUECES COUNTY**

H. Grimm et al's No. 1 A. R. Roberts, Blk. 79, Winter Vegt. Garden Subdivision, 6 miles NW of Robstown, 12 miles NE Agua Dulce Field ..... Drlg. ahead at 1,905 ft.

**SAN PATRICIO COUNTY**

LaFeria Oil & Gas Co.'s No. 1 C. C. Smith in J. C. White Survey, 690 ft. to north line, 350 ft. to east line .... Drlg. in shale at 1,920 ft.

**STARR COUNTY**

The Texas Company's No. 4-A V. G. Guerra, Porcion 67, Share 305-D ..... T. D. 3,590 ft.; standing 2,300 ft. in oil, 35 gravity.
Smith & Adams' No. 1 Welch, Pedernal Sur ..... Drlg. 600 ft.

**WEBB COUNTY**

Everett Suladie's No. 1 Bruni Sur. 131, 150 ft. S line, 150 ft. W line of NW of SE ..... Drlg. 600 ft.

**UVALDE COUNTY**

Waldrop & Welch's No. 1 H. S. Benson, 2 miles northwest of Uvalde ..... T. D. 580 ft.; setting 8¼-inch csg.; hole making small amt. gas.
Phantom Oil Co.'s No. 1 Claudt Sur. 661 ..... Moving in machinery.

**WILLACY COUNTY**

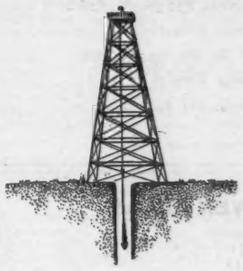
Weimer-Richardson's No. 1 Elmore ..... T. D. 1,860 ft.; shut down in gumbo.

**WILSON COUNTY**

R. M. Sherer's No. 1 Tummilson, A. Trevena Sur. ..... 457 ft.; standing.
Tidal Oil Co.'s No. 1 Felix Kulessa, Susanna Larrison Sur., 235 ft. to E line, 1,320 ft. to S line of 647-acre tract ..... Shut down in shale at 2,516 ft.
Trinity Drillers' No. 1 Richter in Trevino Sur., 3,005 ft. to E line, 250 ft. to N line of 58-ac. lease ..... Rigging up.
Rycade Oil Corp. et al's No. 1 George Hice, Juan Delgado Sur., 650 ft. W of Cibolo River, 150 ft. SE line of tract ..... Location.
Grayburg Oil Co.'s No. 1 Tigler, Parrot Sur. ..... T. D. 3,396 ft.; temp. shut down.
R. M. Sherer's No. 1 First State Bank of Stockdale, Moran Sur. ..... 220 ft.; standing.

**ZAPATA COUNTY**

R. F. Blankenship's No. 1 G. T. Montemeyer, Sur. 46, Blk. 7, 150 ft. N & E lines ..... T. D. 1,320-21 ft.; sand; set 4½-in. csg. 1,320 ft.
Magnolia Pet. Co.'s No. 2 F. G. Martinez Sur. No. 6, 660 ft. to N line, 660 ft. to E line ..... T. D. 2,150 ft.; temp. abd.
O. W. Killam's No. 1 J. G. Martinez Sur No. 2, 550 ft. W line, 150 ft. S line of SE of Sur. ..... Rigging up.
Magnolia Pet. Co.'s No. 3 F. G. Martinez Sur. No. 6, 660 ft. N line, 660 ft. E line of W half of Sur. ..... T. D. 1,872 ft.; sand at 1,872 ft. tested gas through tester, W. O. C.
John Pappas' No. 2 Cuellar, Por. 33 and 34 ..... T. D. 1,700 ft.; standing; boilers blew up.

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Speed Reducers
Switchboards
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Transformers

Shell Pet. Co.'s No. 2 Lopez, Blk. 11, Sur. 288, 660 ft. NW line, 600 ft. SW line ..... Abandoned 1,114 ft.
National Oil Co.'s No. 1 D. B. Adams ..... Standing 670 ft.; showing some gas; waiting on water.

Marts & Beavens' No. 1 Trevino, Blk. 2, Porcions 3 and 3, Sur. 1, 150 ft. SE line and SW line ..... Drlg. 2,420 ft.

**ZAVALA COUNTY**

Tritex Oil Co.'s No. 1 Clay Burns ..... T. D. 780 ft.; standing.
Chicago Merchants Produce Co.'s No. 1 fee. 1 mile E of La Pryor ..... Drlg. 1,000 ft.
Tritex Oil Co.'s No. 2 Childress, one-fourth mile NW of old Dominion Co.'s No. 1 Pryor ..... Drlg. 650 ft.
Weigand Bros.' No. 1 W. L. Gates, Hooper & Wade Sur. No. 13, 1,320 ft. S of N line, 1,220 ft. W of NE cor. Sur., about 16 miles S of Batesville ..... Rigging up.

## LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 54)

**LA SALLE PARISH—URANIA**

Ark. Fuel Oil Co.'s No. 5 Urania, 200 ft. S, 300 ft. E, NW cor. NE SE, Sec. 24-10-1e ..... Drlg. 3,100 ft.
Gardner, Brown & Harter's No. 1 S. J. Winberry, 400 ft. W, 150 f.. S, NE cor. NW, Sec. 18-10-2e ..... Derrick.
Kinney, Hardtner & Randall's No. 1 Kinney, SW SW, Sec. 7-10-2e ..... S.D. 1,570 ft.
Philp et als' No. 1 Urania, SE cor. NE NE, Sec. 1-10-1e ..... Tested 500,000 ft. gas and sanded up; C.O.; setting liner to test; T.D. 730 ft.
Randall et als' No. 2 Urania, Sec. 1-10-1e ..... S.D. 675 ft.
Trio Oil Co.'s No. 2 Urania, NE cor. SW SW NW, Sec. 19-10-1e ..... Rigging up.

**MOREHOUSE PARISH**

Bahan & Bahan's No. 2 Feazel, 990 ft. S, 330 ft. W, NE cor., Sec. 3-20-4 ..... Began drlg. Nov. 20; 12-in. 183 ft.; 8-in. 793 ft.; drlg. 2,035 ft.
J. S. Herkness' No. 12 Bowles, 3,302 ft. E, 3,300 ft. S, NW cor., Sec. 18-20-5 ..... Location.
Magnolia Pet. Co.'s No. 6 U. S. Govt., 490 ft. N, 254 ft. W. SE cor., Lot 2, Sec. 33-21-5 ..... Drlg. shale and boulders 2,197 ft.
Magnolia Pet. Co.'s No. 7 U. S. Gov't., 250 ft. N, 45 ft. W, SW cor. Lot 2, Sec. 33-21-5 ..... Cmtd. 10¾-in. 850 ft.
Southern Carbon Co.'s No. 1 U. S. Gov't., 1,840 ft. W, 660 ft. S, NE cor. Sec. 13-20-4 ..... Began drlg. Nov. 30; cmtd. 13-in. 183 ft.; drlg. 1,540 ft.
Southern Carbon Co.'s No. 13 Tensas, 660 ft. S, 1,320 ft. W, NE cor., Sec. 4-20-4 ..... Began drlg. Nov. 20; cmtd. 12-in. 182 ft.; 6-in. 2,124 ft.
United Carbon Co.'s No. 2 Patton, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 2-20-4 ..... Location.
United Carbon Co.'s No. 3 Patton, 660 ft. W, 660 ft. S, NE cor. SE, Sec. 2-20-4 ..... Location.

**OUACHITA PARISH**

Amalgamated Carbon Co.'s No. 2 Cole, 742 ft. E, 703 ft. S, NW cor., Sec. 43-19-4 ..... Began drlg. Nov. 27; cmtd. 12-in. 185 ft.; 8-in. 890 ft.; drlg 2,116 ft.
Austin & Jordan's No. 1 Albright, 137 ft. W, 364 ft. S northwesterly cor. Sec. 12-18-13 in Sec. 13-18-3 ..... Cmtd. 6-in. 2,129 ft.
Chauvin Gas Co.'s No. 2 Slagle Johnson, 3,498 ft. S, 26 ft. E. NW cor., Sec. 49-18-4 ..... Cmtd. 2,100 ft.
Chauvin Gas Co.'s No. 3 Slagle Johnson, 2,539 ft. S, 55 ft. E. NW cor., Sec. 47-18-4 ..... Rigging up.
Chauvin Gas Co.'s No. 4 Slagle Johnson, 4,505 ft. S, 257 ft. E. NW cor. Sec. 47-18-4 ..... Location.
Hope Prod. Co.'s No. 1 Fairbanks, 660 ft. N, 624 ft. E, SW cor. SE, Sec. 25-20-4 ..... Fishing for bailer 2,180 ft.
Hope Prod. Co.'s No. 2 Fairbanks, 1,876 ft. E, 628 ft. N, SW cor. SE, Sec. 25-20-4 ..... Location.
Hope Prod. Co.'s No. 3 Fairbanks, 1,876 ft. E, 628 ft. S, NW cor. NE, Sec. 36-20-4 ..... Location.
G. E. Jordan's No. 1 Anding, NW NE, Sec. 18-18-5 ..... Plugging back to 3,284 ft; T.D. 3,480 ft.
La. Gas & Fuel Co.'s No. 1 Beard, Sec. 46-18-4 ..... Derrick.
Magnolia Pet. Co.'s No. 2 fee 401, 660 ft. S, 660 ft. E, NW cor., Sec. 2-18-3 ..... Derrick.
Magnolia Pet. Co.'s No. 4 U. S., Sec. 20-19-5; reported completed July 31, in error ..... Tested 1,000,000 ft. gas at 515 lbs. rock pressure; set liner 2,528 ft; bailed dry; plugged back to 2,200 ft; estimated 500,000 ft. gas; W.O; waiting orders 2,528 ft.
Michlousanna O. & G. Dev. Co.'s No. 1 Osterlind, 6,877 ft. S, 819 ft. W, NW cor. irregular Sec. 42-18-4 ..... Began drlg. Nov. 28; cmtd. 12-in. 183 ft; 8-in. 858 ft.
Palmer Corp.'s No. 1 Cagle, 1,964 ft. S, 476 ft. E, NW cor., Sec. 7-18-5 ..... Tested S.W, 2,386 ft.; drlg red shale 2,455 ft.
Sho-Van Gas Products Co.'s No. 2 W. Va., 186 ft. N, 67 ft. W, NW cor., Sec. 42, in Sec. 8 ..... Cmtd. 6-in. 2,140 ft.
Sho-Van Gas Products Co.'s No. 3 W. Va., 1,980 ft. S and W, NE cor., Sec. 8-18-4 ..... Location.
Sho-Van Gas Products Co.'s No. 4 W. Va., 1,078 ft. N, 234 ft. W, NE cor., Sec. 49, in Sec. 7 ..... Location.
Sho-Van Gas Products Co.'s No. 5 W. Va., 2,046 ft. S, 1,790 ft. W, NE cor. SE, Sec. 6-18-4 ..... Cmtd. 12-in. 163 ft.; 8-in. 858 ft.
Southern Carbon Co.'s No. 14 Fairbanks, Sec. 43-20-4 ..... Rigging up.
Southern Carbon Co.'s No. 54 fee, 660 ft. N, 674 ft. W, SE cor. NE, Sec. 13-19-4 ..... Fishing 2,620 ft.
Southern Carbon Co.'s No. 4 Phillips, 660 ft. S, 660 ft. E, NW cor., Sec. 8-19-4 ..... Began drlg. Dec. 1; cmtd. 12-in. 180 ft.; drlg. 325 ft.
Trousdale & Wright's No. 2 Kate Cole, 240 ft. W, 1,311 ft. S of point where N line of Sec. 42 joins dividing line of Secs. 8 and 9, in Sec. 42-18-4 ..... Drlg. shale 1,700 ft.
Union Gas Products Co.'s No. 1 Hare, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 22-19-5 ..... Rig up.
United Oil & Nat. Gas Products Co. of La.'s No. 5 Guthrie, 6,896 ft. N, 6,022 ft. W, cor. Secs. 49, 26, and 25, Sec. 49-20-5 ..... Derrick.
United Oil & Nat. Gas Products Co. of La.'s No. 2 Cole, 660 ft. S. 594 ft. E, C. Sec. 26-20-4 ..... Derrick.
United Carbon Co.'s No. 4 Fudicker, 660 ft. N, 660 ft. E, SW cor. SW Sec. 15-19-5 ..... Rigging up.
United Carbon Co.'s No. 5 Spade, 660 ft. N, 660 ft. W, SE cor. NE Sec. 35-19-3 ..... Location.
W. Va. O. & G. Co.'s No. 9 W. Va., 1,980 ft. E, 1,320 ft. S, NW cor. SW, Sec. 5-18-4 ..... Cmtd. 6-in. 2,133 ft.

**RED RIVER PARISH**

Root Refineries, Inc.'s No. 1 Home State & Savings Bank, 330 ft. N, 330 ft. W, C, Sec. 8-13-10 ..... Oil show 2,570 ft; drill stem test; S.W; cored sand showing gas 2,598 ft; S D. 2,667 ft.
Triple Oil Co.'s No. 1 W. M. Pollock, Sec. 33-13-11 ..... Cmtd. 6⅝-in. 2,466 ft; W.O.S.R; 2,470 ft.

**RICHLAND PARISH**

Ark.-La. P. L. Co.'s No. 1 A. E. Purvis, 762 ft. N, 1,180 ft. W, SE cor. Section 34-17-6 ..... Rigging up.
W. C. Feazell's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6 ..... Rig up.
W. C. Feazell's No. 1 E. L. Wilson, 647 ft. N, 241 ft. E, SW cor. NW, Sec. 31-16-6 ..... Drlg. gumbo 510 ft.
Industrial Gas Co.'s No. 1 Boughton, N 85 deg., 10 min. W, 4,458 ft., 865 ft. S, NE cor., Sec. 1-16-6 ..... Fishing for bit and collar; T.D. 2,033 ft.
Industrial Gas Co.'s No. 1-A J. H. Hemler, 1,431 ft. E, 660 ft. S, NW cor., Sec. 12-16-6 ..... Drlg. plug; bailing csg. 2,300 ft.
Industrial Gas Co.'s No. 1 Rayville State Bank, 660 ft. N, 660 ft. E, C, Sec. 12-16-6 ..... Cmtd. 6-in. 2,300 ft.
Industrial Gas Co.'s No. 1-C Sartor, 536 ft. N, 1,333 ft. E, SW cor., Sec. 21-16-6 ..... Cmtd. gas blowout 235 ft.
Magnolia Pet. Co.'s No. 4 C. M. Noble, 400 ft. S, 660 ft. W, NE cor. SE NE, Sec. 35-16-5 ..... Location.
M. L. Meredith's No. 1 Holdiness, 1,980 ft. S, 990 ft. W, NE cor., Sec. 15-16-6 ..... Cmtd. 12-in. 202 ft.
Northern La. Nat. Gas Co.'s No. 5 Boykin, 380 ft. N, 157 ft. W, SE cor. Sec. 20-17-6 ..... Derrick.
Northern La. Nat. Gas Co.'s No. 1 Pipes, 2,433 ft. S, 581 ft. E, C, Sec. 34-17-6 ..... Drlg. shale and boulders 2,367 ft.
Northern La. Nat. Gas Co.'s No. 1 A. Purvis, 1,282 ft. S, 183 ft. E, C, Sec. 34-17-6 ..... Cmtd. 6-in. 2,300 ft.
Northern La. Nat. Gas Co.'s No. 1 C. M. Purvis, 1,321 ft. E, 630 ft. S, NW cor. SE NW, Sec. 3-16-6 ..... Cmtd. 6-in. 2,300 ft.
Palmer Corp.'s No. 2 Earle, 1,980 ft. N, 1,320 ft. W, SE cor., Sec. 31-17-6 ..... Cmtd. 6-in. 2,300 ft.
Palmer Corp.'s No. 1 Eubanks, 1,100 ft. N, 350 ft. E, SW cor. SE NW, Sec. 26-17-6 ..... Drlg. sandy shale 3,063 ft.
Palmer Corp's No. 5 Rhymes, 1,386 ft. N, 599 ft. E, SW cor. Sec. 34-17-6 ..... Began drlg. Dec. 1; cmtd. 12½-in. 187 ft.
Southern Carbon Co.'s No. 1 S. R. Humble, 660 ft. N, 600 ft. W, SE cor., Sec. 26-16-6 ..... Drill stem stuck 3,235 ft.
Richland Production Co.'s No. 1 Brown, Sec. 1-16-6 ..... Cmtd. 12½-in. 205 ft.; 10-in. 932 ft.
United Carbon Co.'s No. 1 Roberts, 1,650 ft. N, 600 ft. W, SE cor., Sec. 21-16-6 ..... Drlg. shale 2,235 ft.

**SABINE PARISH—PLEASANT HILL**

Ark. Fuel Oil Co.'s No. 3 Horne, 560 ft. N, 195 ft. E, C, Sec. 33-10-12 ..... Rigging up.
Bridges-Clark Oil Co.'s No. 3 Williams, 1,780 ft. N, 2,180 ft. E, SW cor., Sec. 33-10-12 ..... Cmtd. 6-in. 3,126 ft.
Hatcher and others' No. 1 Moore heirs, 300 ft. N, 300 ft. E, C Sec. 32-10-12 ..... Derrick.
Magnolia Pet. Co.'s No. 5 E. E. Hall, 350 ft. N, 313 ft. E, SW cor. NW SW, Sec. 33-10-12 ..... Rigging up.
Reid Clark et als' No. 3 Moore, 1,400 ft. N, 320 ft. W, SE cor., Sec. 32-10-12 ..... Cmtd. 6⅝-in. 3,200 ft.; swabbing little oil; T.D. 3,236 ft.

**UNION PARISH**

Bahan & Bahan's No. 3 School, 1,120 ft. N, 650 ft. W, SE cor. Sec. 10-20-3 ..... Rigging up.
Interstate Nat. Gas Co.'s No. 22 Fee, Sec. 17-20-4 ..... Began drlg. Nov. 13; cmtd. 12-in. 188 ft.; 8-in. 750 ft.
Interstate Nat. Gas Co.'s No. 23 fee, 660 ft. S, 660 ft. E, NW cor., Sec. 33-20-3 ..... Cmtd. 6-in. 2,137 ft.; T.D. 2,185 ft.
Lyons Gas Co.'s No. 1 A. B. Edwards, 723 ft. W, 897 ft. S, NE cor. NW, Sec. 11-20-3 ..... Derrick.
United Carbon Co.'s No. 2 Reid, 1,980 ft. E, 720 ft. S, NW cor. SW Sec. 12-20-3 ..... Began drlg. Dec. 3.

**WEBSTER PARISH—COTTON VALLEY**

Magnolia Pet. Co.'s No. 1 McCook & Hibbler, C SW SW, Sec. 33-21-10 ..... Cored 6-in. gray sand slightly stained 2,966 ft.; casing.
Ohio Oil Co.'s No. 46 Bodcaw, 660 ft. N, 660 ft. E, SW cor. SW NW, Sec. 28-21-10 ..... Rigging up.
Palmer Corp.'s No. 2 Miller, 520 ft. N, 504 ft. E, SW cor. SW, Sec. 28-21-10 ..... Drlg. anhydrite 4,187 ft.
Standard Oil Co.'s No. 1-E Bodcaw, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 28-21-10 ..... Drlg. 2,510 ft.
Standard Oil Co.'s No. 1 Thos. Crichton et al, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 22-21-10 ..... Drlg. 4,035 ft.

**WEBSTER PARISH—SAREPTA AND SHONGALOO**

Bateman et als' No. 2 Womble, 2,340 ft. S, 1,120 ft. E, NW cor., Sec. 1-22-11 ..... Location.
Donohoe O. & G. Co.'s No. 1-B W. B. Roseberry, 350 ft. S, 350 ft. E, C, Sec. 19-23-9 ..... Began drlg Nov. 25; S.D. 104 ft.
Pat Hudson's No. 1 L. S. Gardner, 180 ft. E, 300 ft. S, NW cor. SW NE, Sec. 1-22-11 ..... W.O.S.R; 1,500 ft. oil; 6-ft. sand; T.D. 2,743 ft.
Pat Hudson's No. 2 S. Gardner, 330 ft. N, 300 ft. E, C, Sec. 1-22-11 ..... Drilling.
Pat Hudson's No. 1 B. L. Slack, 330 ft. W, 330 ft. N, SE cor. SW, Sec. 36-23-11 ..... Location.
F. E. Estes' No. 3 Pardee, 1,270 ft. W, 50 ft. S, NE cor. NW, Sec. 3-22-11 ..... Cmtd. 6-in. 2,654 ft.; T. D. 2,656 ft.
Bateman and others' No. 1 J. E. Womble, Sec. 1-22-11 .. Cmtd. 6-in. 2,707 ft.
Magnolia Pet. Co.'s No. 1 C. O. Bailey, 100 ft. N, 660 ft. E, SW cor. NW NE, Sec. 29-23-9 ..... Pumping salt water 2,758 ft.
Magnolia Pet. Co.'s No. 2 Denman, 100 ft. N, 160 f.. W, SE cor. NW Sec. 1-22-11 ..... Location.
Sarepta Oil Co.'s No. 1 L. S. Gardner, 300 ft. S, 300 ft. W, C, Sec. 1-22-11 ..... Cmtd. 6-in. 2,710 ft.; T.D. 2,714 ft.

**ARKANSAS**

**JOHNSON COUNTY—CLARKSVILLE**

Ark.-La. P. L. Co.'s No. 1 Patterson, 1,020 ft. S, 2,670 ft. E, NW cor., Sec. 14-10-24 ..... Rigging up.

**NEVADA COUNTY**

Roy Davis et als' No. 1 Chas. Henry, 1,120 ft. N, 1,120 ft. W, SE cor., Sec. 10-12-20 ..... Derrick.
C. F. Steele's No. 1 E. W. Groves, Sec. 21-14-20 ..... Shut down.

**OUACHITA COUNTY—SMACKOVER**

J. E. Crosbie's No. 4 H. Primm, 300 ft. W, 250 ft. N, SE cor., Sec. 23-16-16 ..... Set liner 3,040 ft; W.O.S.R.
J. E. Crosbie's No. 8 Robertson, 250 ft. S, 200 ft. W, NE cor. SW NW Sec. 25-15-16 ..... Began drlg. Nov. 29; cmtd. 10-in. 48 ft.; drlg. 1,000 ft.
L. H. Hamilton's No. 1 Arnold & Doyle, SE SE, Sec. 23-15-16 ..... Set liner 2,012 ft.; W.O.
Marine Oil Co.'s No. 7-A Hays, Sec. 4-16-15 ..... W.O.S.R; 450 ft. oil; 20-ft. sand; T.D. 2,362 ft.
Phillips Pet. Co.'s No. 3 Clayton, NE cor. NW NE, Sec. 34-15-15 ..... W.O.S.R; 350 ft. fluid in hole; 37-ft. broken sand; T.D. 2,036 ft.
Skelly Oil Co.'s No. 5 Woods, Sec. 34-15-15 ..... Began drlg. Nov. 18; cmtd. 10-in. 62 ft; 6⅝-in. 1,200 ft; T.D. 2,010 ft.
Simms Oil Co.'s No. 5 Johnson, 301 ft. N, 250 ft. W, SE cor. NE SE, Sec. 24-16-15 ..... Drlg. 1,428 ft.
Southern Prod. Co.'s No. 3-A Watts, NW cor. SW SE, Sec. 27-15-16 ..... Cmtd. 10-in. 260 ft.; drlg 1,900 ft.
Standard Oil Co.'s No. 13 Arnold, 200 ft. S, 200 ft. E, NW cor. NE NE, Sec. 26-15-16 ..... Drlg. 1,750 ft.
Standard Oil Co.'s No. 9 Powell, Sec. 34-15-15 ..... Reaming to bottom; T.D. 2,000 ft.
J. D. Wingfield's No. 1 Martin, SW cor., Sec. 26-15-15.. Set 6⅝-in. 2,085 ft; tested little oil and S.W; W.O; T.D. 2,115 ft.

**OUACHITA COUNTY—STEPHENS**

La. Oil Ref. Corp.'s No. 1 Green, 330 ft. S, 330 ft. E, NW cor., Sec. 33-15-19 ..... Tested salt water 2,300 ft.; arranging to deepen.

**UNION COUNTY—CHAMPAGNOLLE**

Magnolia Pet. Co.'s No. 1 Schmidt, 300 ft. N, 300 ft. W, SE cor. NW SW, Sec. 5-17-14 ..... Plugged back to 3,718 ft.; T.D. 3,226 ft.

**UNION COUNTY EL DORADO**

Rice et als' No. 1 W. Ralty, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15 ..... Spudded July 18; cmtd. 10-in. at 92 ft.
Wilson & Chapman's No. 1 Thompson, 150 ft. N, 330 ft. W, SE cor. NW NW, Sec. 4-17-15 ..... Began drlg. Nov. 16; cmtd. 10-in. 110 ft.

**UNION COUNTY—SMACKOVER**

Ark. Fuel Oil Co.'s No. 5 Alphin, Sec. 11-16-16 ..... O.W.D.D; perforated csg. 1,960-70 ft; swbd. dry; filled up 40 ft. oil in hour; W.O.
Foster et als' No. 1 J. V. Spahr, 330 ft. S, 330 ft. W, NE cor. SE SW, Sec. 35-15-16 ..... Rig up.

Lion Oil Ref. Co.'s No. 1 James, CWL, Lot 2, NW, Sec. 6-16-15 ..... Cmtd. 6⅝-in. 1,943 ft; drlg. in; bailing to test 53-ft. broken sand; pumping S.W. 2,018 ft.

Root Refineries, Inc.'s No. 8 Calloway, 510 ft. S, 150 ft. W, NE cor., Sec. 4-16-15 ..... Cmtd. 6⅝-in. 1,958 ft.; T.D. 1,980 ft.

Skelly Oil Co.'s No. 8-A Alphin, 1,320 ft. S, C, Sec. 24-16-16 ..... W.O.S.R. 2,116 ft.

### EAST TEXAS

#### PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 3 Crenshaw, E. F. Mitcheson Sur. Drlg. 2,050 ft.
Ark.-La. P. L. Co.'s No. 8 Warner, Jas. Matthews Sur. Cmtd. 4½-in. 967 ft.
Ark.-La. P. L. Co.'s No. 10 Werner, 350 ft. S, 132 ft. W, NE cor. 15-acre Werner tract in E. S. Mitcheson Sur. ..... Rigging up.
S. H. Gardner's No. 5 Brumble, 5,966 ft. E, 4,132 ft. S, NW cor. B. C. Jordan Sur. ..... S.D. for wtr; T.D. 1,000 ft.
S. H. Gardner's No. 4 Roquemore, 5,176 ft. E, 4,432 ft. S, NW cor. B. C. Jordan Sur. ..... Rigging up.
Magnolia Pet. Co.'s No. 1 M. Jernigan, 330 ft. N, 330 ft. W, SE cor. M. Jerigan tract in Jane Thorpe Sur. Drlg. 2,097 ft.
Magnolia Pet. Co.'s No. 1 D. W. Scott, 640 ft. N, 660 ft. E, SW cor. Scott tract in S. Lawless Sur. ..... Cored lime and shale 2,933 ft.
Magnolia Pet. Co.'s No. 5 G. C. Tiller, 1,114 ft. W, 303 ft. N, SE cor. Jane Thorpe Sur. ..... Cored lime and shale 2,977 ft.
Magnolia Pet. Co.'s No. 6 G. C. Tiller, 393 ft. S, 1,990 ft. E, NW cor. Jane Thorpe Sur. ..... Location.
Nat. Gas Prod. Co.'s No. 10 Roquemore, B. C. Jordan Sur. ..... Began drlg. Oct. 30; cmtd. 10-in. 42 ft.
Nat. Gas Prod. Co.'s No. 11 Roquemore, B. C. Jordan Sur. ..... Drlg. 650 ft.
Nemours Corp.'s No. 6 G. C. Tiller, 2,330 ft. S, 300 ft. W, NE cor. W. D. Matthews Sur. ..... Drlg. 2,150 ft.
The Texas Co.'s No. 8 G. W. Brumble, 1,085 ft. E, 330 ft. N, SW cor. John Womack Sur. ..... Drlg. shale and boulders 1,890 ft.

## GULF COAST FIELDS AND WILDCATS

(Continued from Page 57)

Humble & Valley's No. 4-C Grawunder ..... Comp. flowing 500 bbls. pipe line oil 3,120 ft.
Humble & Valley's No. 3 Helmuth ..... Derrick
Humble & Valley's No. 3 Jackson ..... Derrick
Humble & Valley's No. 1-B Machamehl ..... Derrick
Humble & Valley's No. 5 Saunders ..... Rebuilding rig 3,086 ft.
Humble & Valley's No. 6 Urban ..... Derrick.
Humble & Valley's No. 7 Urban ..... Derrick.
Humble & Valley's No. 8 Urban ..... Location.
Humble & Valley's No. 6 Mueller ..... Rigging up to pump 3,270 ft.
Humble & Valley's No. 7 Mueller ..... Drlg. sticky shale 3,120 ft.
Humble & Valley's No. 8 Mueller ..... Rig
Humble & Valley's No. 2 Ollie Wilson ..... Comp. flowing 80 bbls. 3,519 ft.
Humble & Valley's No. 6 Gotosky ..... Drlg. rock 324 ft.
Humble & Valley's No. 3 Sherrill ..... Drlg. shale and sand 3,408 ft.
Humble & Valley's No. 1 Duncan, State land ..... Rig
Humble & Valley's No. 5 Thompson ..... Comp. flowing 250 bbls. pipe line oil 3,523 ft.
Humble & Valley's No. 6 Thompson ..... Derrick.
Humble & Valley's No. 1-C Mitchell ..... Location.
Humble & Valley's No. 4 Payne ..... Drlg. shale 1,297 ft.
Humble & Valley's No. 5 Payne ..... Derrick
Humble & Valley's No. 6 Payne ..... Derrick
Humble & Valley's No. 7 Payne ..... Location.
Humble & Valley's No. 8 Payne ..... Location.
Humble & Valley's No. 3-A Washington ..... Derrick

#### DE WALT—FORT BEND COUNTY

Humble Oil & Refining Co.'s No. 2-C Bankers Mortgage Rig.
Humble Oil & Refining Co.'s No. 11 Brazos ..... Derrick
Humble Oil & Refining Co.'s No. 12 Brazos ..... Drlg. sticky shale and lime 2,413 ft.
Humble Oil & Refg. Co.'s No. 9 Camp ..... Drlg. sand and shale 3,309 ft.
Humble Oil & Refg. Co.'s No. 8 Hamner ..... Drlg. plug to test sandy shale 3,630 ft.
Humble Oil & Refg. Co.'s No. 11 Sugarland ..... Drlg. shale 3,615 ft.
Humble Oil & Refg. Co.'s No. 12 Sugarland ..... Rigging up to pump 3,785 ft.
Humble Oil & Refg. Co.'s No. 13 Sugarland ..... Rig.
Humble Oil & Refining Co.'s No. 2-B Sugarland ..... Drlg. 1,278 ft.
Humble Oil & Refg. Co.'s No. 7 Nelson ..... Set screen 3,785 ft.

#### HUMBLE—HARRIS COUNTY

Continental Oil Co.'s No. 1 Cezeaux, south side ..... Abandoned 4,520 ft.
Gardner Oil Co.'s No. 1 Perkins ..... Drlg. sandy shale showing oil 2,070 ft.
Humble Oil & Refg. Co.'s No. 6 Williams ..... Drlg. sandy shale 4,388 ft.
Humble Oil & Refg. Co.'s No. 7 Williams (south) ..... Reaming to set screen 5,380 ft.
Humble Oil & Refg. Co.'s No. 8 Williams (south) ..... Rig
Humble Oil & Refg. Co.'s No. 9 Williams, south ..... Drlg. sand and shale 2,062 ft.
Humble Oil & Refg. Co.'s No. 10 Williams (south) ..... Drlg. sand and gravel 566 ft.
Humble Oil & Refining Co.'s No. 2 Trahon (south) ..... Rig.
Morris Investment Co.'s No. 1 fee ..... Drlg. rock 1,428 ft.
South Texas Petroleum Co.'s No. 12 Morris (south) ..... Drlg. hard shale 5,366 ft.
South Texas Petroleum Co.'s No. 13 Morris (south) ..... Drlg. sticky shale 3,642 ft.
South Texas Petroleum Co.'s No. 2 Lee (south) ..... Drlg. gumbo and lime 2,716 ft.
Sun Oil Co.'s No. 3 Bender (northwest) ..... Drlg. shale 3,133 ft.
The Texas Company's No. 2 Dunman, south side ..... Drlg. gumbo 2,594 ft.
The Texas Company's No. 3 Dunman, south side ..... Drlg. gumbo and lime 2,518 ft.
The Texas Company's No. 4 Dunman, south side ..... Drlg. gumbo 1,260 ft.
The Texas Company's No. 41 Stevenson (south) ..... Comp. flowing 145 bbls. oil 5,243 ft.
The Texas Company's No. 23 House ..... Testing 4,000 ft.
West Production Co.'s No. 2 Foster ..... Rig.

#### BLUE RIDGE—FORT BEND COUNTY

Cunningham Prod. Co.'s No. 6 Blakely (workover) ..... Rigging up to pump 2,874 ft.
Sinclair Oil & Gas Co.'s No. 5 Davidson (workover) ..... Set strainer to test sand 4,159 ft.
E. F. Simms' No. 1 Blakely ..... Location.

#### PIERCE JUNCTION—HARRIS COUNTY

Anderson & Plummer's No. 6 Whitehead (workover) .... Comp. flowing 750 bbls. fluid, 6 per cent b.s.; sand 4,699-4,729 ft.
Gulf Production Co.'s No. 31 Taylor ..... Drlg. 1,169 ft.
Navarro Oil Co.-Texas Exploration Co.'s No. 17 Dooley... Set 30 ft. screen; comp. flowing 1,700 bbls. pipe line oil 4,796 ft.
Navarro Oil Co. and Humble Oil & Refg. Co.'s No. 5 Dooley (workover) ..... Pulled screen to deepen.
Rio Bravo Oil Co.'s No. 11-B Settegast ..... Drlg. gumbo and lime 4,810 ft.
Rio Bravo Oil Co.'s No. 16-A Settegast, west ..... Drlg. shale 4,291 ft.
Rio Bravo Oil Co.'s No. 17-A Settegast, west ..... Drlg. sandy shale 5,151 ft.
Saxet Gas Co.'s No. 5 Herman (southwest) ..... Drlg. gumbo 4,000 ft.
Saxet Gas Co.'s No. 6 Herman, southwest ..... Drlg. lime and gumbo 3,446 ft.
Saxet Gas Co.'s No. 7 Herman, southwest ..... Derrick.
Superior Oil Co.'s No. 3 B. Whitehead (workover) ..... Pumped 100 bbls. 4,459 ft.; sidetracking 3,874 ft.
Superior Oil Corp.'s No. 2 Herman, southwest ..... Drlg. gumbo 1,854 ft. after setting 12½-in. casing.
Shaw et al's No. 4-E Fitzsimmons ..... Cem. 6⅝-in. casing 4,384 ft.; to test oil sand 4,464 ft.
Smith & Plummer's No. 1 Settegast ..... Drlg. rock 5,688 ft.

#### LIBERTY—LIBERTY COUNTY

Abercrombie & Harrison's No. 4 fee (workover) ..... Pulling liner to deepen 3,066 ft.
Empire Gas & Fuel Co.'s No. 9 Groggan ..... Drlg. gumbo 1,717 ft.
Empire Gas & Fuel Co.'s No. 10 Groggan ..... Drlg. 512 ft.
Sun Oil Co.'s No. 52 Mitchell ..... Sandy shale 3,422 ft.
Sun Oil Co.'s No. 53 Mitchell ..... Comp. flowing 220 bbls. oil 3,162 ft.
The Texas Company's No. 5 Green (workover) ..... Pulling screen to deepen 3,290 ft.

#### HULL—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 30 Barngrover ..... Drlg. 3,287 ft.
W. B. Flynn's No. 3 Harrison (workover) ..... Drlg. 3,497 ft.
Gulf Production Co.'s No. 50 Phoenix (workover) ..... Testing oil sand 4,176 ft.
Gulf Production Co.'s No. 68 Phoenix (workover) ..... Rigging up to deepen.
Gulf Production Co.'s No. 76 Phoenix (workover) ..... Comp. flowing 1,400 bbls. oil 3,859 ft.
Houston Production Co.'s No. 14 Barngrover ..... Drlg. 1,412 ft.
Humble Oil & Refg. Co.'s No. 25 Guedry ..... Location.
Humble Oil & Refg. Co.'s No. 11 Hooks-Spell (workover) Drlg. 3,412 ft.
Ocean Springs Oil Co.'s No. 1-H Palmer ..... Drlg. 1,317 ft.
Republic Production Co.'s No. 56 Dolbear (workover) ... Drlg. 2,312 ft.
Republic Production Co.'s No. 76 Dolbear (workover) ... Comp. producing 250 bbls. fluid, 20 per cent b.s. and water, 3,027 ft.
Republic Production Co.'s No. 132 Dolbear (workover) ... Drlg. 2,961 ft.
The Texas Company's No. 7 Hannah-Vacuum (workover). Comp. as gas well 2,942 ft.
The Texas Company's No. 8 Hannah-Vacuum ..... Rigging up.

#### BIG CREEK—FORT BEND COUNTY

Benedum & Trees' No. 1 J. F. Ahlers ..... Derrick.
Benedum & Trees' No. 1 Moore ..... Drlg. heaving shale 4,150 ft.
Gulf Production Co.'s No. 45 Davis (workover) ..... To test oil sand 4,769 ft.
Gulf Production Co.'s No. 57 Davis ..... Flowing by heads and produced 30 bbls. first hour 4,325 ft.
The Texas Company's No. 3 fee (old well) ..... Comp. flowing estimated 9,000 bbls. daily 4,062 ft.

#### LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 4 Mayes ..... Drlg. hard sand 3,192 ft.
Pure Oil Co.'s No. 5 Mayes ..... Comp. flowing 1,138 bbls. oil first 14 hrs. 2,818 ft.
Pure Oil Co.'s No. 6-A Mayes ..... Drlg. sandy shale 2,037 ft.
Pure Oil Co.'s No. 7 Mayes ..... Comp. flowing 220 bbls. first 4 hrs. 2,340 ft.
Pure Oil Co.'s No. 8 Mayes ..... Total depth 3,016 ft.; reaming to make drill stem test 2,977 ft.
Pure Oil Co.'s No. 3 Lost Lake ..... Abandoned in cap rock 4,189 ft.

#### NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 26 Wisdom ..... Drlg. shale and lime 5,468 ft.

#### BATSON—HARDIN COUNTY

Ada Belle Oil Co.'s No. 130 Carlton ..... Drlg. 1,236 ft.
Paraffine Oil Co.'s No. 81 Paraffine ..... Comp. pumping 4 bbls. net oil 427 ft.

#### SOUR LAKE—HARDIN COUNTY

Austin et al's No. 1 Watson ..... Drlg. 966 ft.
Lake View Oil Co.'s No. 3 Minor ..... Drlg. 1,159 ft.
Gilbert Oil Co.'s No. 107 Gilbert ..... Derrick.
The Texas Company's No. 287 fee ..... Drlg. 2,512 ft.

#### SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 86 Cotton ..... Drlg. gumbo 868 ft.

#### ORANGE—ORANGE COUNTY

Supreme Oil Co.'s No. 3 Jackson (workover) ..... Tested salt water 3,472 ft.; to deepen.
Sinclair Oil & Gas Co.'s No. 5 Gailliere (workover) .... Bailing 3,517 ft.

#### GOOSE CREEK—HARRIS COUNTY

R. J. Bradbury's No. 5 Gillette ..... Drlg. 808 ft.
Cedar Bayou Oil Co.'s No. 11 Busch ..... Bailed dry 2,611 ft.; standing.
Russell Ferrell's No. 4 Gillette (workover) ..... Pulling screen to deepen.
Humble Oil & Refg. Co.'s No. 19 Ashbell-Smith ..... Comp. pumping 30 bbls. net oil 2,479 ft.
Humble Oil & Refg. Co.'s No. 76 Simms-Smith ..... Drlg. shale 5,053 ft.
Lake Shore Oil Co.'s No. 4 Duke ..... Shut down 2,594 ft.
J. M. West, trustee, No. 3 Scorrega ..... Drlg. 4,435 ft.

#### SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 28 McFaddin (workover) ..... Drlg. sand 5,289 ft.
Yount Lee Oil Co.'s No. 31 McFaddin (workover) ..... Drlg. shale 4,368 ft.
Yount Lee Oil Co.'s No. 119 McFaddin ..... Abandoned in salt 4,603 ft.
Yount Lee Oil Co.'s No. 120 McFaddin ..... Drlg. sand 4,327 ft.
Yount Lee Oil Co.'s No. 121 McFaddin ..... Drlg. shale and lime 2,529 ft.
Yount Lee Oil Co.'s No. 122 McFaddin ..... Rig.
Yount Lee Oil Co.'s No. 85 Gladys City (workover) .... Comp. flowing 700 bbls. 2,987 ft.
Yount Lee Oil Co.'s No. 99 Gladys City ..... Rigging up.
Yount Lee Oil Co.'s No. 11 fee (workover) ..... Milling.

#### WEST COLUMBIA—BRAZORIA COUNTY

Continental Oil Co.'s No. 1 Hogg ..... Drlg. shale and lime 6,055 ft.
Gulf Production Co.'s No. 3-B Hogg ..... Abandoned; tested salt water 3,682-3,703 ft.; bottom in salt 4,076 ft.
Humble Oil & Refg. Co.'s No. 3 Smith ..... Abandoned 5,123 ft.
Saxet Oil Co.'s No. 2 Hogg ..... Tested salt water 3,575 ft.
The Texas Company's No. 25 Arnold ..... Set 60-ft. screen 2,823 ft.; comp. flowing 2,000 bbls., 45 per cent b.s. and water.

#### HIGH ISLAND—GALVESTON COUNTY

Gulf Production Co.'s No. 5-A Smith ..... Drlg. 3,300 ft.
Marrs McLean's No. 6 Cade (old well) ..... Drlg. 3,391 ft.
Marrs McLean's No. 12 Cade (workover) ..... To deepen.
Marrs McLean's No. 17 Cade ..... Rig.

#### DAMON MOUND—BRAZORIA COUNTY

H. R. Cullen's No. 2 Smith ..... Drilled heaving shale 3,413 ft.; sidetracking 3,200 ft.

#### REFUGIO—REFUGIO COUNTY

Benedum & Trees' No. 3 Rooke ..... Rebuilding derrick to deepen 3,345 ft.
Morgan Oil Corp.'s No. 1 Fox, Block 72 ..... Drlg. shale 1,817 ft.
Morgan Oil Corp.'s No. 1 Fox, Block 76 ..... Set 6⅝-in. casing to test sand 3,569-77 ft.
Morgan Oil Corp.'s No. 1 Johnson ..... Drlg. gumbo 3,605 ft.
Herman F. Heep's No. 1 Rutherford ..... Rigging.
Houston Gulf Gas Co.'s No. 1 Lambert ..... Tested dry gas 3,482-92 ft.; drlg. deeper sand 3,526 ft.
Houston Gulf Gas Co.'s No. 4 Fannie Heard (workover) .. Resetting screen.
Houston Gulf Gas Co.'s No. 3 Tom Heard ..... Set 8¼-in. casing to test sand showing gas 3,593-3,603 ft.
Houston Gulf Gas Co.'s No. 2 Cummings ..... Bailing; showing gas; sand 3,652-62 ft.
Houston Gulf Gas Co.'s No. 2 Morgan Shelly ..... Comp. flowing 100 bbls. pipe line oil on three-sixteenths inch choke; sand 3,651-59 ft.
Houston Gulf Gas Co.'s No. 9 J. A. Lambert (workover).. Resetting screen.
Houston Gulf Gas Co.'s No. 2 Morgan-Vance ..... Rig.
Mission Drlg. Co.'s No. 1 Henry Heard ..... Set casing to test sand 3,683 ft.
Mission Drlg. Co.'s No. 2 O'Brien ..... Drlg. sticky shale 2,715 ft.
Mission Drlg. Co.'s No. 2 Mitchell ..... Drlg. gumbo and lime 4,957 ft.
Mission Drlg. Co.'s No. 2 Powers (workover) ..... Rig.
Mission Drilling Co.'s No. 1 Ben Shelton ..... Rig.
Oilgufer Oil Co.'s No. 2 Ryalls ..... Rig
Refugio Oil Corp.'s No. 2 Murphy ..... Fishing 3,674 ft.
Saxet Oil Co.'s No. 1 Ryals ..... Changing rigs 1,414 ft.
Saxet Oil Co.'s No. 3 Holmes Heard ..... Rig.
Houston Oil Co.'s No. 9 Wilson Heard ..... Set 8¼-in. casing to test oil sand 3,673-81 ft.
Houston Oil Co.'s No. 11 Pratt-Hewitt-Rooke ..... Drlg. hard rock 108 ft.
Houston Oil Co.'s No. 12 Pratt-Hewitt-Rooke ..... Rig.
Independent Oil & Gas Co.'s No. 1 O'Brien ..... Trying to blow out; total depth 6,227 ft.
Independent Oil & Gas Co.'s No. 1 Claude Heard ..... Comp. flowing 312 bbls. pipe line oil on quarter inch choke 3,668-78 ft.
Independent Oil & Gas Co.'s No. 1-A J. F. B. Heard ... Drlg. gumbo 2,290 ft.
Independent Oil & Gas Co.'s No. 1-B J. F. B. Heard .... Spudded and shut down.
Independent Oil & Gas Co.'s No. 2-B J. F. B. Heard ..... Derrick.
Independent Oil & Gas Co.'s No. 1 T. P. Shelley ..... Derrick.
Independent Oil & Gas Co.'s No. 1 Huddleston ..... Location.
Independent Oil & Gas Co.'s No. 4 Reilly ..... Drlg. rock 1,975 ft.
Independent Oil & Gas Co.'s No. 5 Reilly ..... Drlg. gumbo 3,196 ft.
Larco Co.'s No. 1 Strauch ..... Set 10-in. surface casing 500 ft.
Pearson Properties' No. 1 Babb ..... Drlg. rock 1,063 ft.
Pearson Properties' No. 3 Fox ..... Rig.
Ed Price et al's No. 1 Mission River ..... Derrick.
The Texas Company's No. 1 Shelton ..... Derrick.

**SOUTH LOUISIANA FIELDS**

**LOCKPORT—CALCASIEU PARISH**

Vacuum Oil Co. & Gulf Refining Co.'s No. 25 Miller ....Derrick.
Vacuum Oil Co. & Gulf Refining Co.'s No. 8 Bordages ...Rig.
Vacuum & Gulf's No. 3 State .....Cem. 4½-in. casing to test oil sand 5,610 ft.

**HACKBERRY—CAMERON PARISH**

Calcasieu Oil Co.'s No. 5 Lemke .....Coring 3,812 ft.
Calcasieu Oil Co.'s No. 4 Caldwell .....Drlg. 5,321 ft.
Rycade Oil Corp.-Humble Oil & Refg. Co.'s No. 4 Gulf Land .....Fishing rock bit 2,439 ft.
Yount Lee Oil Co.'s No. 2 Carter & Sweeney, Old Hackberry .....Abandoned.

**JENNINGS—ACADIA PARISH**

Jennings Petroleum Co.'s No. 3 Syndicate fee .....Drlg. 1,768 ft.
The Texas Company's No. 5 Rayne heirs (King tract)...Drlg. 5,362 ft.
Yount Lee Oil Co.'s No. 5 Crowley, Sec. 48-9s-3w .....Rig.
Yount Lee Oil Co.'s No. 7 Houssiere-Latrielle, Sec. 47-9s-2w .....Drlg. 7,414 ft.
Yount Lee Oil Co.'s No. 1 E. F. Simms (northwest side)..Drlg. 5,769 ft.

**EDGERLY—CALCASIEU PARISH**

Strange Oil Co.'s No. 1 Reed .....Rig.
Strange Oil Co.'s No. 1 Koonce .....Derrick.
Hercules Oil Co.'s No. 3 Paraffin (workover) .....Drlg. 3,688 ft.
Rex Petroleum Co.'s No. 10 Hunter (workover) .....Drlg. 3,768 ft.

**VINTON—CALCASIEU PARISH**

Gulf Refining Co.'s No. 49 Star-Vincent .....Rig.
Harris McLean's No. 4 Gray (workover) .....Drlg. 1,736 ft.
Vinton Petroleum Co.'s No. 19 Vincent (workover) .....Preparing to deepen 2,352 ft.
Vinton Petroleum Co.'s No. 7 Gray (workover) .....Rigging up to pump 2,887 ft.

**BAYOU BOUILLON—ST. MARTIN PARISH**

Rycade Oil Corp.'s No. 7 Bouillion fee .....Shot and pulled stuck drill pipe 4,806 ft.
Rycade Oil Corp.'s No. 9 Bouillon fee .....Location.
Rycade Oil Corp.'s No. 2 Atchafalaya fee (oil well) ....Rig up to deepen; present depth 3,045 ft.
Rycade Oil Corp.'s No. 5 Atchafalaya fee .....Derrick.

**STARKS—CALCASIEU PARISH**

J. O. Davis' No. 1 Industrial .....Drlg. 451 ft.
Gulf Refining Co.'s No. 17 Lutcher-Moore .....Drlg. 1,736 ft.

**SWEET LAKE—CAMERON PARISH**

Pure Oil Co.'s No. 7 Yount Lee .....Standing cem. 6,881 ft.
Pure Oil Co.'s No. 9 Yount Lee .....Moving in rig.

**SORRENTO—ASCENSION PARISH**

Gulf Refining Co.'s No. 16 United Land Co.....Drlg. 3,328 ft.

**MISCELLANEOUS WILDCATS**

**TEXAS**

**AUSTIN COUNTY**

Empire Gas & Fuel Co.'s No. 1 Jackson, San Felipe.....Tested salt and sulphur water 3,143 ft.

**BRAZORIA COUNTY**

Mills Bennett Production Co.'s No. 1 Allen, Allen Dome..Drlg. shale and lime 3,609 ft.
Faust et al's No. 5 Faust .....Shut down 2,912 ft.
Shell Petroleum Corp.'s No. 1 Blakely-Winston, Danbury .....Drill stem test showed salt water 1,879 ft.; drilling deeper.
Steel & Strickland's No. 1 Lockridge .....Rig.

**CHAMBERS COUNTY**

Chicago Oil Corp.'s No. 1 Lawrence .....No report.

**FORT BEND COUNTY**

Gulf Production Co.'s No. 1 Clodine .....Rigging.
Pure Oil Co.'s No. 1 Farris, Roberts Sur. .....Location.

**HARRIS COUNTY**

Baldwin and associates' No. 1 Kitzman, Cypress .....Shut down 4,055 ft.
R. E. Brooks' No. 1 Beall, Eureka .....Drlg. 412 ft.
Golf Crest Oil Co.'s No. 1 Gulf Crest .....Standing 2,520 ft.
A. F. Belunek's No. 1 Thompson .....Rig.
Cranfill & Reynolds' No. 1 Brown .....Drlg. gumbo 3,750 ft.
Hammond et al's No. 1 Brodt .....Gumbo 1,190 ft.; shut down after fire.
Higgins Oil & Fuel Co.'s No. 1 Sladous, Mykawa .....Drlg. 1,000 ft.
Humble Oil & Refg. Co.'s No. 7 Warren, Hockley .....Rigging up.
Humble Oil & Refg. Co.'s No. 2 Minnetex .....Drlg. 1,200 ft.
Humble Oil & Refg. Co.'s No. 1 Sladous (workover) ....Preparing to deepen from 3,453 ft.
Humble Oil & Refg. Co.'s No. 2 Woodburn .....Set one joint screen 3,425 ft.; tested 15,000,000 ft. dry gas, 700 pounds pressure.
Rich et al's No. 1 Highlands .....Derrick.
Torsen et al's No. 1 Stewart .....Shut down 2,580 ft.
Watts Brothers' No. 1 Hubert, Mykawa .....Drlg. 3,271 ft.
York & Robertson's No. 1 Garrett, Harris & Carpenter Sur. .....Sandy shale 1,917 ft.; shut down.

**JEFFERSON COUNTY**

Deep Test Oil Corp.'s No. 1 Faith-McFadden .....No report.
Gulf Production Co.'s No. 8 Bordages .....Drlg. 4,613 ft.
Gulf Production Co.'s No. 4 Burrell .....Drlg. 4,112 ft.
Gulf Production Co.'s No. 2 Guy Junker, Fannette .....Drlg. 2,141 ft.
River Oil Corp.'s No. 1 Ship Channel, Brown Survey ....Standing.
Rosedale Oil Co.'s No. 1 Walker .....Standing after bailing dry 1,649 ft.
Stilwell Oil Co.'s No. 1 Brinkman .....Drlg. 1,830 ft.
The Texas Company's No. 2 Pipkin, Big Hill .....Cem. 6⅝-in. casing 5,779 ft.
The Texas Company's No. 1 Fitzhugh, Big Hill .....Cmtd. 6⅝-in. casing 5,050 ft.

**LIBERTY COUNTY**

Campbell et al's No. 1 fee .....Rig.
Gulf Production Co.'s No. 1 Weiser .....Drlg. 5,378 ft.
Gulf Production Co.'s No. 3 Boyt, Hankamer .....Drlg. 3,462 ft.
Humble Oil & Refg. Co.'s No. 6 Sterling, Moss Bluff ....Coring after drilling plug 5,656 ft.
Cranfill Reynolds Co.'s No. 1 Vajdak, Sheeks .....No report.
Cranfill Reynolds' No. 1 Thomas Davis, Sheeks .....No report.
Yount Lee Oil Co.'s No. 2 Moores Bluff, Sheeks .....Drlg. gumbo and lime 2,476 ft.

**MATAGORDA COUNTY**

Cockburn et al's No. 1 Hawkins, Shepherds, Mott .....Location.

**MONTGOMERY COUNTY**

Kelley-Baker et al's No. 1 Juerges .....No report.
Pure Oil Co.'s No. 1 Damphier, Smith Sur. .....Location.

**ORANGE COUNTY**

Gulf Production Co.'s No. 1 J. H. Starks, Port Neches ...Drlg. 5,308 ft.
Gulf Production Co.'s No. 1 M. H. Starks, Port Neches ...Location.
The Texas Company's No. 1 Polk, Port Neches .....Waiting storage to test 3,146 ft.
The Texas Company's No. 2 Polk, Port Neches .....Building foundations.

**WALLER COUNTY**

Talbert & Markle's No. 1 Young .....No report.

**SOUTH LOUISIANA**

**ASCENSION PARISH**

Triumph Oil Corp.'s No. 2 Lacey, Sec. 20-10s-4e .....No report.

**ASSUMPTION PARISH**

Gulf Refining Co.'s No. 1 Armitese, Napoleonville .....Rig.
Poor Boys Drilling Co.'s No. 1 LeBarre, Sec. 47-12s-13e ..Rigging up.

**CALCASIEU PARISH**

Wilfred Lahay's No. 2 James .....No report.

**CAMERON PARISH**

Shell Pet. Corp.'s No. 6 Watkins, Black Bayou .....Preparing to test 4,956 ft.
Shell Pet. Corp.'s No. 1 Marceaux, Mallard Bay, Sec. 32-12s-3w .....Drlg. sticky shale and lime 5,411 ft.
The Texas Company's No. 5 Calcasieu Lake, Calcasieu Lake Dome .....Location.
Yount Lee Oil Co.'s No. 1 Starks, Sec. 1-15s-15w .....Drlg. shale 6,621 ft.

**IBERIA PARISH**

The Texas Company's No. 4 Vermillion Bay .....Drlg. rock 4,066 ft.

**IBERVILLE PARISH**

Shell Petroleum Corp.'s No. 4 Wilbert, White Castle ....Location.
Standard Oil Co.'s No. 3 Wilbert, Bayou Blue .....Derrick.
Standard Oil Co.'s No. 4 Wilbert, Bayou Blue .....Drlg. 2,420 ft.
Standard Oil Co.'s No. 5 Wilbert, Bayou Blue .....Building derrick.
Standard Oil Co.'s No. 3 Schwing, Bayou Blue .....Derrick.

**JEFFERSON DAVIS PARISH**

Vacuum Oil Co.'s No. 2 DeVilbiss, Roanoke .....Abandoned 6,631 ft.
Yount Lee Oil Co.'s No. 1 Courtney, Welsh .....Spudding.

**LA FOURCHE PARISH**

Gulf Refining Co.'s No. 25 Stark, Thibodaux .....Drlg. 1,616 ft.
Gulf Refg. Co.'s No. 1 City of New Orleans, Bay Champagne .....Rig.

**PLAQUEMINE PARISH**

Humble Oil & Refg. Co.'s No. 1 Cockrell-Moran, Lake Grand Ecaille .....Drlg. 600 ft.
Humble Oil & Refining Co.'s No. 1 Lake Washington, Lake Grand Ecaille .....Total depth 4,260 ft.
The Texas Company's No. 3 Garden Island Bay .....Blew out 1,448 ft.

**ST. LANDRY PARISH**

Elbof Exploration Co.'s No. 1 Ledoux, Eunice.....No report.
Herbert-Baker Oil Co.'s No. 1 Fisher, Section 10-3S-4e...No report.
Gulf Refining Co.'s No. 1 Hoskins, Port Barre .....Drlg. 1,863 ft.
The Texas Company's No. 3 Botney Bay, Port Barre ....Rigging up.

**ST. MARTIN PARISH**

Bayou Teche Oil Co.'s No. 1 Fournet, Cypress Island.....No report.
Ohio Oil Co.'s No. 5 Martin, Hager .....Derrick.
The Texas Company's No. 1 fee, Hager Dome .....Drlg. 5,441 ft.
The Texas Company's No. 3 fee, Hager .....Location.
The Texas Company's No. 2 St. Martin, Hager .....Drlg. 4,321 ft.
The Texas Company's No. 4 fee, Hager .....Location.
The Texas Company's No. 1 Iberville, Hager .....Drlg. 2,256 ft.
The Texas Company's No. 2 Iberville, Hager .....Location.
The Texas Company's No. 3 Iberville, Hager .....Location.

**TANGIPAHOA PARISH**

Completion Oil Co.'s No. 1 Amos .....No report.
Joan Development Co.'s No. 1 Hilton, Sec. 20-9s-9e .....Cem. 6⅝-in. casing 3,008 ft., standing.

**TERREBONNE PARISH**

The Texas Company's No. 4 State-Bay St. Elaine .....Location.
The Texas Company's No. 2 La. L. & E. Co., Dog Lake..Shut down 800 ft.; waiting water.
The Texas Company's No. 1 State—Bay Junop.....Total depth 4,778 ft.; oil sand; sidetracking in gumbo 3,614 ft.
The Texas Company's No. 3 State—Lake Pelto.....Derrick.
The Texas Company's No. 2 State—Caillou Island.....Rig.
The Texas Company's No. 3 State—Lake Barre .....Rig.

## SOUTHWEST TEXAS

(Continued from Page 58)

field of some kind in that part of the country and possibly two fields.

**Looks Like New Gas Field**

In addition to this field from Pettus east, Nichols' No. 2 Hicks, in Bee County, a few miles south and some west of the Mission Drilling Co.'s No. 2 Ray, looks like a gas well and a new field at about 1,990 feet. It shows 640 pounds rock pressure. It is too far away from the Mission Drilling Co.'s No. 2 Ray at Pettus to be in the same field and seems to point to a new gas field in Bee County.

The Texas Company after drilling two formation tests north of Pettus and on the Bee-Karnes County line, is making location for the No. 2 Tipps which will be a deep test. It was the original intention to drill seven formation tests first. The No. 1 Ruhman and No. 1 Tipps were drilled to about 900 feet.

The Texas Company has completed its geophysical work on the McFadden ranch in the southern part of Victoria County, about 20 miles northeast of the Refugio Field, and is making selection of the acreage it will retain as provided for in the option it took.

**Schoolfield-O'Byrne—Duval County**

Magnolia Petroleum Co.'s No. 11 Hahl, Block 25, Survey 250, 330 feet E line, 150 feet S line, drilling at 1,218 feet; set 12½-inch casing at 38 feet.

Simpson Fell Oil Co.'s No. 7 Moody, Survey 60, 2,148 feet N line, 150 feet W line, drilling at 1,400 feet.

Trapshooter Reilly Oil & Royalty Co.'s No. 3 Hahl, Block 26, Survey 250, 30 feet E line, 150 feet N line, setting casing, total depth 2,338 feet.

**Randado—Jim Hogg County**

Randado Oil Corp.'s No. 35 Palacious, Block 2, Survey 291, 150 feet S line, 450 feet E line, standing at 100 feet.

Magnolia Petroleum Co.'s No. 1 N. Hinnant, Block 1, Survey 20, 600 feet N and W lines, abandoned at 2,992 feet.

Magnolia Petroleum Co.'s No. 1 Weil, Block 2, Survey 5, 660 feet N line, 349 feet E line, location.

**Henne-Winch-Fariss—Jim Hogg County**

George S. Marshall's No. 4 Holbien, Block 10, Survey 11, Share 3, 150 feet S and W lines, derrick up.

George S. Marshall's No. 5 Holbien, Block 10, Survey 15, Share 3, 150 feet N and W lines, rigging up.

W. R. Shankle's No. 3 Holbien, Block 22, Clarkson & Carscaden Subdivision (Hogg Ridge), Share 3, Las Animas Grant, 90 feet N line, 150 feet W line, standing at 600 feet.

**Alworth—Jim Hogg County**

Alworth-Stevens' No. 1 Garza, Block 12, Survey 40, 450 feet NW line, 150 feet NE line, location.

**Aviator—Webb County**

C. E. Mayberry's No. 9 Puig, Block 1, Edgingston Subdivision, Puig Ranch, Albercas Grant, 729 feet W line, 1,100 feet N line, drilling at 1,500 feet.

**Carolina-Texas—Webb County**

Foster Barnsley's No. 7 Webster, Survey 684, 750 feet E line, 510 feet S line of NE of SW of survey, drilling at 101 feet. Set 10-inch casing at 100 feet.

W. R. Shankle's No. 2 Webster, Survey 684, 1,170 feet W line, 150 feet S line, rigging up.

**Magnolia Cole—Webb County**

Cole Petroleum Co.'s No. 67 Benavides, Block 4, Survey 412, 313 feet E line, 160 feet N line, total depth 2,357 feet, sand at 2,351-57 feet, testing through tester.

Magnolia Petroleum Co.'s No. 1 F. Benavides, Survey 660, 660 feet N line, 660 feet E line of N half of SE of survey, location.

Magnolia Petroleum Co.'s No. 2 C. Benavides, Survey 662, 660 feet W line, 660 feet S lines, derrick.

Magnolia Petroleum Co.'s No. 3 C. Benavides, Survey 662, 1,980 feet W line, 1,980 feet S line, location.

Magnolia Petroleum Co.'s No. 4 Brennan-Benavides, in the Mariano Arispe Grant, corner Blocks 16-17-52-53, Myrtle E. Hale Subdivision, location.

Magnolia Petroleum Co.'s No. 1 J. G. Valdez, Block 15, Survey 754, 150 feet S and W lines, drilling at 1,475 feet, set 12½-inch casing at 42 feet.

Magnolia Petroleum Co.'s No. 1 D. Benavides, Block 14, Survey 694, 660 feet to S and E lines, derrick.

O. W. Killam's No. 15 Bruni, Survey 6, Mariano Arispe Grant, 150 feet SW line, 150 feet SE line of Survey 6, Adams Subdivision, Bruni Land, drilling at 50 feet; set 10-inch casing.

**Cole Gas—Webb County**

Magnolia Petroleum Co.'s No. 1 S. Perez, Survey 460, J. Poitevent, 1,980 feet N line, 660 feet W line, drilling at 2,730 feet.

Magnolia Petroleum Co.'s No. 2 King-Harper, Block 2, Survey 323, 660 feet N and E lines, location.

Houston Oil Co.'s No. D-20 Benavides, Block 5, Survey 753, 566 feet N line, 666 feet E line, total depth 2,351 feet; testing; set 6⅝-inch casing at 2,346 feet; sand at 2,346-51 feet.

John J. O'Hern's No. 2 Valdez, Block 6, SW of NE of Survey 754, 663 feet N line, 667 feet E line, total depth 2,324-51 feet; sand tested gas and oil through tester; set 6⅝-inch casing at 2,330 feet; waiting on cement.

**Jennings—Zapata County**

Harry L. Fansler's No. 1 F. Cuellar, Survey 285, 150 feet W line, 1,170 feet N line, rigging up.

Blair & Acklin's No. 2 Trevino, Block 1, Survey 66, 150 feet W line, 200 feet N line, drilling at 1,200 feet.

R. F. Blankenship's No. 1 Garza, Block 13, Survey 413, 160 feet N and E lines, resumed drilling at 1,510 feet.

Killam-Duggan's No. 10 Cuellar, Survey 277, 2,095 feet W line, 1,890 feet S

line; completed for 150 bbls. at 1,596 feet.

Killam-Duggan's No. 11 Cuellar, Cerrito Blanco Grant, 645 feet SW line, 1,350 feet NW line of 866-acre tract which is E half of 1,772-acre Cuellar tract, Cerrito Blanco Grant, total depth 1,378 feet; rock at 1,377 feet; sand at 1,378 feet.

O. W. Killam's No. 17 Cuellar, 600 feet N line, 940 feet E line, 160-acre Cuellar tract out of 1,772-A Cerrito Blanco Grant; derrick.

South Texas Production Co.'s No. 2 Roy Jennings, Cerrito Blanco Grant, 13,000 feet to NW line, 9,800 feet to SW line, drilling at 1,971 feet.

South Texas Production Co.'s No. 7 Joe Jennings, Cerrito Blanco Grant, 640 feet SE line, 660 feet NE line, spudded in.

South Texas Production Co.'s No. 8 Joe Jennings, Cerrito Blanco Grant, 2,640 feet SE line, 2,660 feet NE line, rigging up rotary.

**Henne-Winch-Fariss—Zapata County**

Magnolia Petroleum Co.'s No. 4 F. G. Martinez, Survey 4, 660 feet S line, 660 feet E line of W half of survey, location.

Magnolia Petroleum Co.'s No. 5 Martinez, Survey 6, 660 feet S line, 660 feet E line of S line of Magnolia tract in NW of survey, location.

## COMPLETIONS

**Caldwell County—Bruner**

Humble Oil & Refining Co.'s No. A-5 M. Briscoe in the J. Hinds Survey, 206 feet to north line, 485 feet to west line, completed for 250 bbls. at 2,688 feet; same company's No. 9 C. F. Dye in the Hinds Survey, 300 feet east of No. 1 Dye, completed for 150 bbls. at 2,680 feet; same company's No. C-9 Floy Gray in the J. Hinds Survey, 150 feet to north line, 350 feet to east line, completed for 25 bbls. at 2,681 feet.

Humble Oil and Luling's No. A-7 Johnson in the J. Hinds Survey, 593 feet to south line, 650 feet to west line, completed for 10 bbls. at 2,720 feet.

**Guadalupe County—Darst Creek**

Magnolia Petroleum Co.'s No. 1 Rand Miller in the Jerome B. Alexander Survey, 150 feet to northwest and southwest lines, flowed 310 bbls. in 24 hours; now shut in; total depth 2,621 feet.

**Medina County—Adams Gas Field**

Jake Jarman's No. 1 J. P. Nixon in the A.B.&M. No. 63 Survey, 1,400 feet to north line, 1,300 feet to east line in southwest end of Adams gas field; total depth 942 feet; completed 3,000,000 feet gas.

## DRILLING OPERATIONS

**Caldwell—Buchanan**

Neuman & Speer, Inc., No. 1 McConnell in the William Spillers Survey, 900 feet southwest of The Texas Company's No. 1 Cude; total depth 1,945 feet; installing pump.

**Caldwell—Bruner**

Alexander & Smith Oil Co.'s No. 1 G. W. New in the J. Hinds Survey, 50 feet to north and west lines, location.

**Guadalupe—Darst Creek**

Gulf Production Co.'s No. 1 C. Anderson in the J. C. Darst Survey, 150 feet to south and east lines, location. Same company's No. 1 Thomas Dix in the Joel R. Robinson Survey, 150 feet to northeast and southeast lines of lease, 300 feet southwest of U.N.&S. No. 1 Dix, location. Same company's No. 1 Tadlock in the Jacob C. Darst Survey, 150 feet northwest corner, location.

Kirby Petroleum Co.'s No. 1 Rand Miller in the Jerome B. Alexander Survey, 3,450 feet to west line, 150 feet to north line; total depth 490 feet; drilling in sand and shale.

Magnolia Petroleum Co.'s No. 1 A. M. Baker in the James Hodges Survey, location being made northeast of company's No. 1 Appling. Same company's No. 1 Thomas Dix in the Joel R. Robinson Survey, 150 feet to southeast line of lease, 150 feet northeast of corner of Alexander Survey, drilling in shale at 2,202 feet. Same company's No. 2 Thomas Dix in the Joel R. Robinson Survey, offset to U.N.&S. No. 1 Dix, 150 feet to northwest line of lease, 1,000 feet to northeast line of lease, drilling in shale at 1,516 feet. Same company's No. 1 L. V. Echols in the James Hodges Survey, 150 feet to northwest and southwest lines of farm, 3,650 feet to southwest, 3,220 feet to northwest of survey, location. Same company's No. 2 L. V. Echols in the James Hodges Survey, 150 feet to southwest and southeast lines of lease, derrick up. Same company's No. 1 Peter Klien in the Joel R. Robinson Survey, 150 feet to northeast line of lease, 150 feet southwest of southwest line of Alexander Survey, drilling in Taylor marl at 2,163 feet. Same company's No. 1 C. Zedler in the James Hodges league, 150 feet to northwest and northeast lines of 100-acre tract, derrick.

Mundine Investment Co.'s No. 1 L. V. Echols in the James Hodges Survey in 11-acre tract out of south point of L. V. Echols tract, 150 feet to northwest and southwest lines of tract, 3,650 feet to southwest, 4,200 feet to northwest lines of Survey, drilling in Georgetown lime at 2,693 feet.

Penn Oil Co.'s No. 1 Rand Miller in the Jerome B. Alexander Survey, rigging up.

The Texas Company's No. 2 Dallas Wilson in the J. C. Darst Survey, 150 feet to south and west lines, derrick. Same company's No. 2 L. Anderson in the Jacob Darst Survey, 150 feet to north and east lines, shut down at 685 feet. Same company's No. 3 L. Anderson in the Jacob Darst Survey, 150 feet to north and west lines, location corrected. Same company's No. 4 Lemmie Anderson in the J. C. Darst Survey, 150 feet to north and west lines of farm, derrick.

Trinity Drillers-Clements' No. 1 Rand Miller in the Jerome B. Alexander Survey, 150 feet to northwest and northeast lines of 25.5-acre tract, total depth 2,622 feet in Edwards; set casing at 2,617 feet at top of Edwards.

Turman Oil Co.'s No. 1 Rand Miller in the Jerome B. Alexander Survey, 150 feet to northwest and southwest lines of lease, drilling in Del Rio clay at 2,478 feet. Same company's No. 2 Rand Miller in the Jerome B. Alexander Survey, center of lease, rigging up.

United North & South Development Co.'s No. 1 Thomas Dix in the Joel R. Robinson Survey, 150 feet to southeast and southwest lines of lease, total depth 2,547 feet; waiting on orders; set casing at 2,545 feet. Same company's No. 2 Thomas Dix in the Joel R. Robinson Survey, 150 feet to southeast line of lease, 450 feet to southwest line of lease, 300 feet northeast of No. 1 Dix, moving in rig.

**Bee County—Pettus Field**

Mission Drilling Co.'s No. 5 Ray, 1,200 feet east of No. 2, location.

**Brooks County—Lasater Field**

Houston Oil Co. of Texas' No. 1 Holbein-Wormser in the Palo Blanco de Maguellas Survey, 330 feet to north line, 6,540 feet to east line, direct offset 660 feet south of No. 1 Lasater, total depth 3,160 feet; in shale, fishing.

**Kleberg County—Kingsville Pool**

Humble Oil & Refining Co.'s No. 8 R. J. Kleberg in the K.T.&I. Survey, Section 40, Lot 7, 150 feet south and east lines of lot, trying to complete for a dry gas well in a sand at approximately 2,400 feet.

**Live Oak—Cartwright Pool**

Houston Oil Co.'s No. 2 J. B. Dunning in the M. B. Kilvin Survey, 1,445 feet north of No. 1, drilling in shale at 2,973 feet.

**Nueces County—Agua Dulce Field**

Agua Dulce Oil & Gas Co. and Houston Gulf Gas Co.'s No. 1 Ollie Purl, 450 feet from south and west lines of N half Section 6, Ross Peters Subdivision, drilling in at 2,305 feet.

**San Patricio County—White Point Field**

Spencer & Rhodes' No. 2 Texas Company fee, Lot 6, Roos Subdivision Survey, 150 feet to south and west lines of west 50 acres, derrick partly built; standing.

**Victoria County—Nursery Field**

Humble Oil & Refining Co.'s No. A-3 Jay J. Welder in the D.L.&C. Survey, 1,634 feet southeast lines, 736 feet southwest lines, drilling in shale at 5,415 feet.

**Duval County—Cole Gas Field**

Allied Gas Co.'s No. 1 Dinn, Survey 143, 660 feet south line, 660 feet east line, total depth 1,744 feet; set 6⅝-inch casing at 1,735 feet; sand at 1,737-44 feet tested gas; bailing. Same company's No. 2 Dinn, Survey 665, 300 feet north line, 300 feet east line, drilling at 50 feet; set 10-inch casing at 45 feet. Same company's No. 3 Dinn, Survey 143, 660 feet north line, 660 feet east line of NE of SE, location.

Magnolia Petroleum Co.'s No. 2 King-Benavides, Block 12, Survey 694, 450 feet north line, 150 feet west line, location.

J. G. Mackay's No. 3 Dinn, Survey 454, 660 feet west line, 660 feet north line of NW of SW, location.

Simms Oil Co.'s No. 7 Dinn, Survey 454, 660 feet west line, 660 feet north line of SW of NW, drilling at 1,600 feet.

**Duval-Kohler**

Humble Oil & Refining Co.'s No. 37 Kohler, Survey 144, 330 feet to north line, 495 feet to east line, total depth 1,747 feet, bailed small amount oil; rigging pumping equipment. Same company's No. 1 Peters, Survey 398, 1,495 feet north line, 1,495 feet west line, drilling at 1,184 feet.

**Duval-Schoolfield-O'Byrne**

C. E. Long's No. 4 Hahl, Block 26, Survey 250, 330 feet east line, 150 feet north line, location.

Magnolia Petroleum Co.'s No. 10 Hahl, Block 25, Survey 250, 330 feet east line, 150 feet south line, total depth 2,321 feet; waiting on power.

## LA.-ARK. FIELDS

(Continued from Page 54)

all. On the other hand, were ordinary testing to be done after seeing a show of oil and gas no well would result. For example, Bowman-Hicks' No. 5, which is the latest completion in the main Zwolle Field, was drilled down to near the base of the chalk before any bailing was started.

The bottom of the chalk at that location is about 2,611 feet and this well stopped at 2,587 feet. It made no show at all. It was bailed dry. Later, it showed a hatful of oil and water. The second day it showed for a 20-bbl. pumper and standard rig was ordered. A week after the first bailing it was flowing over the top of the 8¼-inch casing and then made a big head that went all the way up through the 112-foot derrick.

**New Work Contemplated**

With all the trading that is going on there is, of course, the usual talk of new locations, but so far the only offset that has been staked is Gay's No. 2-A Bowman-Hicks, 200 feet south and east NE cor. NW Section 3-7-12, a half mile south of the cause of all the excitement. Within the next 10 days or two weeks, however, there will be at least a dozen operations starting as numerous leases executed have drilling clauses included.

While the Zwolle area is the principal attraction at present, operators are by no means losing sight of what is developing in the Carterville area of northeastern Bossier Parish and fresh interest is added to territory closer to Shreveport by G. G. Nesbit's No. 1 Leonard in Section 20-19-13, which picked up 2 feet of sand showing oil and is setting casing at around 2,540 feet for a test, total around 2,545 feet. From present appearances it seems that there will be three very live areas in this district during the immediate future—Zwolle, Carterville and the vicinity of the Nesbit wildcat. Then, too, Magnolia Petroleum Co. may be able to retrieve its fortune with No. 1 McCook & Hibbler in Section 22-21-10, Webster Parish, Cotton Valley's deep test at 6,966 feet, which, after taking a weeping core, was lost, temporarily it is hoped, by some individual's bad judgment in using too little cement in setting 5-7/16-inch casing—only 75 sacks it is reported.

Also Tunica Petroleum Co.'s successes in small shallow wells in the White Sulphur district of LaSalle and Grant Parishes 20 miles or so southeast of Urania production has attracted some big time attention lately and it is possible that one or two of the big companies may go in and drill. Tunica has a half dozen or so 15 to 25-bbl. pumpers in that district producing high grade oil from around 800 feet, and the only reason the territory hasn't been played more than it has is the larger producers in Oklahoma, West Texas and California and the overproduction situation in general. Arkansas Fuel Oil Co.'s deep test in Urania, No. 5-F Urania, Section 24-10-1e, is drilling at 3,100 feet and is understood to be slated for 4,500-5,000 feet "unless."

Not necessarily throwing cold (or salt) water on the Zwolle situation, Gay's No. 2 Sabine Lumber Co. in Section 23-7-14, a half mile south of his group of four wells in the Blue Lake district, was abandoned as a salt water hole at 3,830 feet. In the Elm Grove district Louisiana Gas & Fuel Co.'s No. 1 T. A. Lawrence in Section 12-17-12 gauged 500,000 feet of gas, total depth 1,745 feet, and No. 1 Murff, Section 24-17-12, measured 21,886,000 feet of gas at 879 feet.

Dixie district of Caddo Parish had not much to show. Fitzsimmons Drilling Co. abandoned location for No. 1 Sentell, Section 10-19-14, an offset to Onyett and others' small producer reported this week. Onyett's well, No. 1 Dickson, went on the completions list as a 35-bbl. pumper, total depth 2,444 feet, the location being in the SW Section 10-19-14. Haynes Brothers' No. 2 Oden, Section 20-19-14, a Dixie wildcat, was dry at 2,505 feet and abandoned. The Texas Company's No. 3 Hunter, Section 8-19-14, temporarily abandoned last week at 2,448 feet, was finally written off the list as a salt water hole. Arrow Oil Syndicate's No. 1 Pender, Section 11-20-15, in the Oil City dis-

*R. L. Gay, trustee's No. 1-A Bowman-Hicks, Section 34-8-12, Sabine Parish, Shreveport district's wildcat gusher, flowing through a quarter-inch choke into earthen storage through 4-inch flow line. The picture was made shortly after the oil-drenched crew had succeeded in setting a new gate while the well was blowing over the crownblock with a solid stream of 41.5 gravity crude from 8¼-inch casing.*

trict, was a salt water hole at 2,385 feet, and Double II Oil Co.'s No. 12 Spell in Pine Island started pumping 135 bbls. from 1,690 feet. Simplex Oil Co.'s No. 7 Hunsicker, Section 15-20-15, Pine Island, pumped 50 bbls., total depth 2,219 feet. J. C. Tippett and others' No. 1 Levee Board, Section 26-21-16, Oil City area, was a salt water hole at 1,860 feet.

In LaSalle Parish, Air Lift Oil Co.'s No. 8-A Hardtner, Section 7-10-2e, the first completion in Urania in several months was put on the air making 50 bbls. from 1,531 feet.

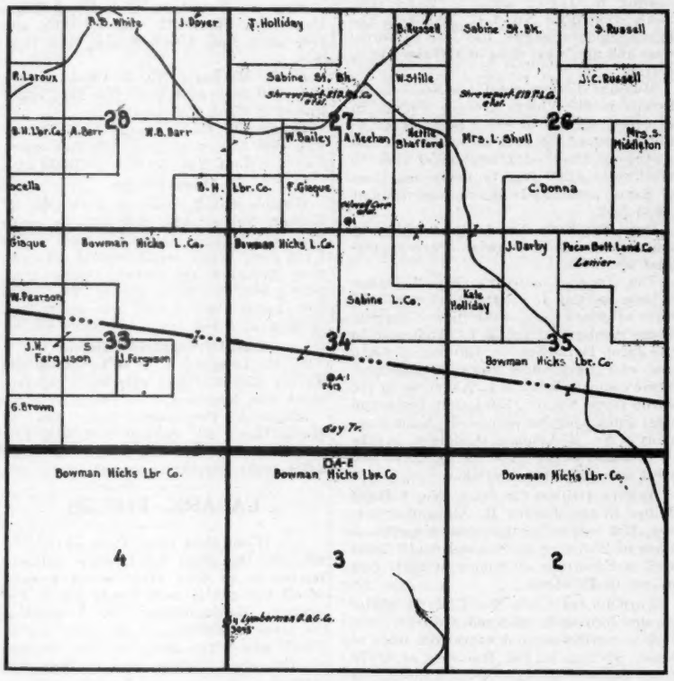
Morehouse district of Monroe gas field registered J. S. Herkness completion of No. 11 Bowles, Section 18-20-5 gauging 2,240,000 feet of gas at 322 pounds, total depth 2,187 feet. Southern Carbon Co.'s No. 12 Tensas Delta, Section 2-20-4, gauged 4,284,000 feet of gas at 880 pounds rock pressure at 2,177 feet.

In Ouachita Parish, New Process Carbon Co.'s No. 2 Cole, Section 35-20-4, made 3,500,000 feet of gas from 2,165 feet. Pipes & Mack completed No. 1 Burke estate, Section 6-18-5, gauging 1,268,000 feet at 530 pounds, total depth 2,228 feet.

Union Parish, missing from the report for several weeks, had four completions: Bahan & Bahan abandoned location for No. 1 Bess, Section 11-20-3; their No. 2 Parks, Section 2-20-3, gauged 4,121,638 feet of gas at 995 pounds from 2,175 feet. It was the second hole on this location, the first being junked when wild gas came in through the surface water sand. J. R. Bahan abandoned location for No. 1 fee in the NE cor. NW Section 11-20-3. E. S. Hall's No. 3 Spencer, Section 2-20-3, measured 4,000,000 feet of gas at 840 pounds, total depth 2,126 feet.

Shreveport Contractors' No. 1 Buie, Section 17-15-7, 3 miles southeast of production, tested salt water at 2,365 feet much to the disappointment of several of the major companies who seemed to be quite hot on this prospect, as shown by the leases taken in this area after the Shreveport Contractors had their gas show just below the 6-inch casing seat at 2,315 feet. This well checked somewhat lower than the Richland Field proper, but on account of the remarkable resemblance of the gas sand encountered in this well to the wells in the Richland Field as well as the structural conditions had been depended on as a probable extension.

International Gas Products Co.'s No. 1 Boughton, Section 33-16-6, in the SE cor. of the field, was a big gasser at 2,475 feet. Northern Louisiana Natural Gas Co.'s No. 1-A Colvin, Section 34-17-6, in the NE cor. of the field, measured 1,500,000 feet of gas from 2,450 feet, the average depth in an area close to where the Hope Production Co. got gas at 2,900 feet.




*Parts of Townships 7 and 8, Ranges 12 and 13, showing location of R. L. Gay's No. 1-A Bowman-Hicks, in Section 34-8-12, the two locations that have been staked offsetting the Shreveport district's latest new pool discovery well, and the area in which most of the trading is going on. Ohio Oil Co. is understood to have closed for 1,000 acres of the Bowman-Hicks' acreage immediately surrounding the well on all sides at $100 per acre.*

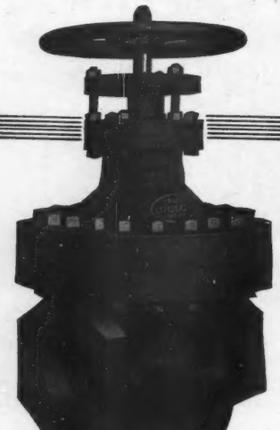
### Arkansas Development

All Arkansas had to show was four wells in the new development of the Smackover shallow sand. Oil Fields Corp.'s No. 10 McKenzie, Section 36-15-16, Smackover, pumped 15 bbls. initial from 2,002 feet. Southern Production Co.'s No. 1-A Watts pumped 35 bbls. from 2,002 feet. Imperial Oil & Gas Products Co.'s No. 4 Murphy, Section 9-16-15, pumped 60 bbls. from 2,386 feet after perforating casing. E. N. Jones' No. 1 H. Murphy, Section 2-16-15, Union County, pumped 15 bbls. from 1,981 feet.

### Production

Standard Pipe Line Co.'s opening of its 4-inch line to the new Zwolle production did not make such a big difference in total daily average runs from the field for this division. The total was 101,390 bbls. compared to 100,400 bbls. last week. Zwolle added 3,100 bbls. but declines in other areas held the total close to what it has been for the last several weeks. Daily average runs from the field for the several pools were:

| NORTH LOUISIANA | |
|---|---|
| Caddo, light | 10,595 |
| Caddo, heavy | 2,830 |
| Homer | 3,710 |
| Haynesville | 4,820 |
| DeSoto-Red River | 2,980 |
| Elm Grove | 540 |
| Bellevue | 625 |
| Cotton Valley | 2,500 |
| Urania | 5,500 |
| Pleasant Hill | 740 |
| Sarepta | 650 |
| Zwolle | 3,100 |
| Total | 38,590 |
| **ARKANSAS** | |
| El Dorado | 4,290 |
| Smackover, light | 5,790 |
| Smackover, heavy | 43,745 |
| Stephens | 1,020 |
| Nevada County | 1,080 |
| Lisbon | 1,140 |
| Champagnolle | 5,650 |
| Bradley | 85 |
| Total | 62,800 |
| Both States | 101,390 |
| Last week | 100,400 |
| Increase | 990 |

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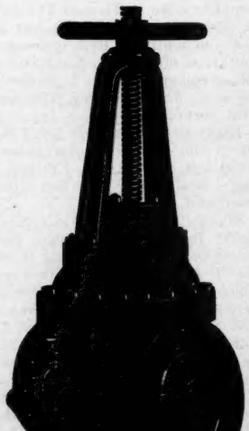


# Practical Suggestions in Refining

By W. T. Ziegenhain

## INVESTIGATE NUMEROUS COMMERCIAL SOLVENTS FOR EXTRACTION OF WAX

In addition to the commercial and semicommercial scale work being done on the separation of the wax from lubricating oils at the Indian Refining Co.'s plant at Lawrenceville, Ill., considerable research work is under way at other points tending to cheapen the process and cause its general adoption as the means of wax separation. It is generally accepted that this separation may be made more complete by use of solvents than by cold pressing and sweating but up to the present, the objection has been made to the process principally because of the high initial cost of the solvent and the mechanical difficulties involved when placing it on a commercial basis.

The large scale fermentation of corn and other starchy bodies has permitted the relatively cheap manufacture of the various alcohols, esters, etc. These are now available in large enough quantities and the supply may be made as large in the future as warranted so that no hesitancy on the part of the refiners may be justified on this basis. Manufacturers of these products are already faced with overproduction and say they could materially reduce the cost, if the quantity of the outlet could be substantially increased.

This has prompted the more general investigation of the problem of choosing suitable solvents which show a selective action. These solvents may act to either dissolve the wax or the oil. So long as the solvent is selective in either case, it may be said to "show possibilities." Other factors, however, such as its cost, boiling point, color stability, etc., may later eliminate it and all of these factors have been investigated for 28 commercial solvents by J. W. Poole at the Massachusetts Institute of Technology. He summarizes the results of his investigation by saying that acetone, butanol, an acetone-butanol mix, ethyl acetate, butyl acetate, chlorobenzine and a mixture of toluene and butanol offer the best possibilities, considering selective solvent power, temperature of use, volatility and initial cost. He also states that the addition of acetone does not appear to improve the qualities of the butanol. After butanol, ethyl acetate and butyl acetate seem to be most suitable for commercial application. Mr. Poole has prepared a table which effectively and concisely shows the properties of all of the solvents investigated.

In general, the work indicated a decided decrease in the solubility with an increase in the molecular weight, indicating more or less, that equal mols of the solvent dissolve equal quantities of wax.

In preparing the accompanying table the respective solvents were mixed with a lubricant made from a Pennsylvania crude, a similar lub made from coastal crude, and a mixture of the two lubs and also a melted wax of 122° F. melting point. The lubricating oils used had a viscosity within the range of 300 to 350° at 100° F. Equal parts of the oil and solvent were taken in each case and the inspections for solubility were made at 10° C. and at 21° C. In most cases the solubility was noted for a higher temperature, also, that temperature was different for each solvent as determined by the temperature of complete miscibility, boiling point of solvent, or the highest temperature obtained in the steam bath in which the mixtures were heated.

From the table, it may be seen that as the temperature increased, the solubility of the wax increased faster than the solubility of the oil. In the last column of the table, any unusual characteristic of the respective solvents is also shown and such results as the darkening of the solution on standing was reported. This darkening occurred in the case of using tetrachloroethane, ethylene dichloride and carbon tetra chloride which apparently automatically eliminates these as solvents.. Mr. Poole's remarks that ethyl alcohol exerts no apparent selective solvent action for either oil or wax. Kerosene, turpentine, toluene and xylene show decided selective action but the precipitate formed is gelatinous when cooled and presents difficulties in separation.

**QUALITATIVE SOLUBILITY CHART**

**Figures shown under temperatures are percentage increases and decreases in volume of solvent; negative values denote decrease.**

| Solvent— | Boiling point (° C.) | Approx. price per gal. | 10° C. A | 10° C. B | 10° C. C | 10° C. D | 21° C. A | 21° C. B | 21° C. C | 21° C. D | Higher temperatures, ° C. (*) and (†) A | B | C | D | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ethyl acetate | 77 | $1.10 | 100 | —50 | 100 | 0 | 100 | —50 | 100 | 0 | ... (68) | 100 | ... | 100 (68) | Apparently has fairly good selective qualities; A and C appear more soluble than B. B separates slowly from solution at 10° C. and 21° C. |
| Butyl acetate | 125 | 1.40 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (50) | Has marked selectivity for oil over wax; ppt. from D somewhat crystalline at 10°C. and 21° C. |
| Amyl acetate | 148 | 1.60 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (51) | Same as for butyl acetate. |
| Kerosene | 240-500 | 0.12 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | . . | ... | ... | 100 (65) | Same as for butyl acetate. |
| Toluene | 111 | 0.40 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (55) | Same as for butyl acetate. |
| Xylene | 142 | 0.40 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | . | ... | 100 (50) | Same as for butyl acetate. |
| Turpentine | 300 | 0.60 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (51) | Same as for butyl acetate. |
| Chlorobenzene | 132 | 0.64 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 15 | ... | ... | ... | 100 (65) | Marked selectivity for oil over wax. D very crystalline at 10° C. and 21° C. |
| Carbon tetrachloride | 76 | 0.90 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (65) | A, B, C and D darken on standing. |
| Tetrachloro-ethane | 135 | 1.90 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 0 | ... | ... | ... | 100 (50) | Good selective qualities, but A, B, C, and D darken on standing. |
| Ethylene dichloride | ... | ... | ... | ... | ... | .. | ... | ... | ... | .. | ... | ... | ... | ... | Past experience shows this to possess good selective qualities, but that solutions darken on standing. |
| Ethyl alcohol | 78 | 2.70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 (70) | 0 (74) | 0 (75) | 0 (75) | Apparently no selective qualities. |
| n-Propyl alcohol | 97 | 1.00 | 25 | 15 | 20 | 0 | 25 | 15 | 20 | 0 | 100 (35) | 100 (75) | 100 (70) | 100 (65) | A appears more soluble than C, and C more than B; selectivity for oil over wax. |
| Isopropyl alcohol | 83 | 1.00 | —15 | —15 | —15 | 0 | —15 | —15 | —15 | 0 | 100 (70) | 50 (80) | 100 (75) | 100 (75) | Seems to have selectivity for oil over wax, oil layer increases. |
| Butanol | 117 | 1.40 | 100 | 30 | 100 | 0 | 100 | 30 | 100 | 0 | ... (80) | 100 | ... | 100 (50) | Apparently has good selective qualities; A and C appear to be more soluble than B. |
| Amyl alcohol | 138 | 1.67 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (55) | Apparently has marked selectivity for oil over wax. |
| Diacetone alcohol | ... | 1.70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 (77) | 10 (94) | 100 (88) | 0 (88) | Some selective qualities at high temperatures. |
| Acetone | 56 | 1.00 | —10 | —10 | —10 | 0 | —10 | —10 | —10 | 0 | 0 (87) | 0 (87) | 0 (87) | 0 (87) | Does not appear to have very good selective possibilities. |
| Ethyl methyl ketone | 81 | 2.00 | 100 | —25 | 100 | 0 | 100 | —25 | 100 | 0 | ... (57) | 100 | ... | 100 (53) | Apparently has fairly good selective qualities; A and C appear more soluble than B. |
| 50% butanol + 50% acetone | ... | ... | ... | ... | 100 | 0 | 0 | 0 | 100 | 0 | 0 ... (82) | 0 | 100 (82) | 100 (60) | Marked selectivity for A over B, C, and D at low temperatures. |
| Mesityl oxide | 128 | ... | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (50) | Marked selectivity for oil over wax. |
| n-Butylaldehyde | ... | ... | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 5 | ... | ... | ... | 100 (50) | Same remarks as for butyl acetate. |
| Acetic anhydride | 137 | 2.61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 (90) | 0 (90) | 0 (85) | 0 (50) | Has apparently no selective qualities. |
| Glacial acetic acid | 118 | 1.20 | —15 | —15 | —15 | 0 | —15 | —15 | —15 | 0 | —15 (92) | —15 (92) | —15 (92) | 0 (75) | Has apparently no selective qualities. |
| Di utyl phthalate | ... | .. | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 | ... (85) | 100 | ... | 100 (60) | A and C seem more soluble than B; apparently has good selective qualities; solvent viscous. |
| Cellosolve | ... | 2.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 (56) | 100 (90) | 100 (75) | 100 (92) | May have some selective qualities at high temperatures. |
| Methyl cellosolve | 124 | 1.95 | —15 | 0 | —10 | 0 | —15 | 0 | —10 | 0 | —15 (94) | 0 (92) | —10 (90) | 0 (50) | Apparently no selective qualities. |
| Butyl cellosolve | 134 | 2.48 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 0 | ... | ... | ... | 100 (50) | Appears to have good selective qualities; marked selectivity for oil over wax. |

A—10 cc. Texas oil and 10 cc. solvent; B—10 cc. Pennsylvania oil and 10 cc. solvent; C—5 cc. Texas oil, 5 cc. Pennsylvania oil, and 10 cc. solvent; D—10 cc. melted wax and 10 cc. solvent.

*Numerical values represent the apparent percentage increase or decrease (negative values) in the solvent layer.

†Temperatures are indicated by numbers in parentheses and are in degrees centigrade.

## FUEL OIL REPLACED COAL IN REFINERIES PAST YEAR

Fuel oil replaced coal in many of the eastern refineries in 1928, according to the annual survey of the Bureau of Mines recently issued. The replacement of the coal by oil was no doubt greatly influenced by the low fuel oil prices which prevailed in all refining sections throughout the year. The increase in the use of oil amounted to approximately 5,000,000 bbls., 2,000,000 bbls. of this being accounted for in the refineries along the Atlantic seaboard. This condition was brought about indirectly as a result of the increased volume of heavy Venezuelan crude. Large decreases in the use of coal were also reported in the coal states of Pennsylvania, Ohio and West Virginia.

G. R. Hopkins of the Bureau of Mines reports that refiners burned 46,400,000 bbls. of fuel oil, 3,362,000 tons of coal, 114,950,000,000 cubic feet of natural gas, 77,313,000,000 cubic feet of refinery gas and 470,0000 tons of coke. The total heat available from these fuels amounted to 582,156,000,00,000 B.t.u. as compared with 578,784,000,000,000 B.t.u. in 1927.

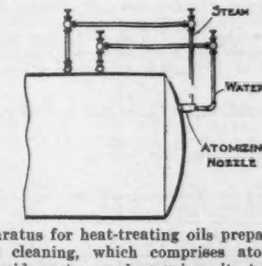
The increase in the heat available serves to indicate the increase in refinery crude runs and cracking operations but due to the improved methods of operation and the improved equipment the fuel consumption figures fall short of the actual increase in the operations for the year. A very noticeable change occurred in the refineries in the eastern states in which many of them replaced their shell stills with pipe stills. New and larger pipe stills were added to many refineries in all sections so that fuel efficiencies were given a large general increase. This is seen in the fact the average heat consumed per barrel of crude run amounted to 637,000 B.t.u. in 1928 and 698,000 B.t.u. the year previous.

## Recent Patents

### COOL WITH WATER VAPORS

1,735,462. Art of Treating Hydrocarbons. John F. Johnson, Westfield, N. J., assignor to Standard Oil Development Co., a corporation of Delaware. Filed December 12, 1924. Serial No. 755,388. 2 Claims. (Cl. 196—1.)

1. Process of cooling hot pressure stills, soaking drums, and analogous apparatus for heat-treating oils preparatory to cleaning, which comprises atomizing liquid water and causing it to pass through the apparatus in cooling relation thereto.



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Oil located by secret eastern method. Success guaranteed, or fee returned. E. A. Wilson, 214 South Cheyenne, Tulsa, Okla.

## BUSINESS OPPORTUNITIES

CONTRACTOR with standard tools in Southwest Texas wants contract up to 3,500 feet. May take interest. Write Box E-35, The Oil and Gas Journal, Tulsa, Okla.

SMALL GAS business and country home. Easy business yielding good income. About 85 consumers. Ed Fortner, Woodburn, Ky.

INDUSTRIAL ENGINEERING appraisals and inventories for financial purposes. Estimates furnished. Pipe line shortage checked Industrial Engineering and Appraisal Company of Tulsa, Okla., 323 Mid-Continent Bldg.

CAPITAL—Investment broker will aid in financing good oil deal. Submit full details. Write Box E-30, The Oil and Gas Journal, Tulsa, Okla.

WEST TEXAS warranted and mineral lands. Two dollars. Ten year mineral lease sixty cents. Joe Cunningham, Big Spring, Texas.

WANT BLOCKS OF ACREAGE for drilling of well. Submit geology and as full details as possible in first reply. Write Box E-41, The Oil and Gas Journal, Tulsa, Okla.

320-ACRE PROVEN lease, eastern Kansas, now equipped with 28 wells producing in Peru sand. Will give liberal proposition and interest in this lease for a well to Bartlesville sand. E. G. Soebbing, P.O. Box 664, Kansas City, Mo.

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Offered private individual or structural steel manufacturer half interest in manufacturer's contract covering the Mid-Continent oil fields. A patented oil field tool that is covered with basic patents which run the full life of the patent.

This equipment has been pioneered by the present distributor and is now approved by many petroleum engineers and production superintendents and many of them in use with the leading oil companies.

One hundred per cent profit possible by manufacturing in quantities that will justify a reduction in cost.

Sufficient capital is required to retire present partner and take over present equipment on hand, such as raw materials, patterns, drawings and to manufacture a quantity of these tools as well as to cover virgin territories embodied in the contract.

This proposition is offered by an experienced oil field equipment manufacturer manufacturing his own patented oil field tools, and is well known throughout the Mid-Continent fields.

Only a man that is acquainted with the oil industry and equipment would be interested in our proposition or be considered. It is desired that the investor be active in our organization in the capacity most suitable.

If interested address President, P.O. Box 3128, Tulsa, Okla.

## HELP WANTED

LARGE OIL FIELD EQUIPMENT manufacturing concern in the East has an opening for several first class designers with at least from six to eight years of actual experience. College education desired, although not essential. Supply all information necessary from which to make a proper estimate as to the suitability of the applicant. Write Box E-39, The Oil and Gas Journal, Tulsa, Okla.

WANTED: Civil Engineer with Refinery experience by Producing, Refining and Marketing Company, operating in Mid-Continent and located in city of 100,000. Address Box E-23, The Oil and Gas Journal, Tulsa, Okla.

HEAT TRANSFER equipment manufacturer desires Sales Engineers, Calculating Engineers and Designers experienced in the Power Plant, Petroleum Refrigeration and Industrial Fields. Excellent opportunities for proper applicants. Give full information in first letter. All replies considered strictly confidential. Write Heat Transfer Products, Inc., affiliated with American Locomotive Company, 30 Church Street, New York City.

## HELP WANTED

WANTED DESIGNING ENGINEER with a technical education with two or three years of drafting experience in oil refinery work. Permanent connection for proper party. Apply by letter, giving experience in detail, salary desired, time required to report; send recent photograph. Shell Petroleum Corp., Sellers, La.

DRAFTSMAN. Age 26-35, Technical Graduate, with experience in design of general oil refinery apparatus such as stills, condensers, fractionating columns, piping, etc. State age, experience, and education. Location, Philadelphia. Write Box E-24, The Oil and Gas Journal, Tulsa, Okla.

This is a most opportune time to sell your used equipment. Let a classified advertisement in The Oil and Gas Journal find buyers for you.

## POSITION WANTED

YOUNG GEOLOGIST, six years experience, Oklahoma, Texas, and New Mexico, wishes to represent a newly organized company or individual on an interest and salary basis. Active member A.A.P.C. Now employed. Write Box E-25, The Oil and Gas Journal, Tulsa, Okla.

ACCOUNTANT. 4 years experience with major oil company in ledger closing, station and agency auditing. Write Box E-26, The Oil and Gas Journal, Tulsa, Okla.

AVIATOR, A-&-E Mechanic, Welding Engineer Pipe Line, Plant Construction Experience, Read Blue Prints. No objection to foreign service. Address Box E-34, The Oil and Gas Journal, Tulsa, Okla.

PIPE SUPT. Seven years experience in city and main line work, wishes steady position with oil or gas company. References. Write Box E-33, The Oil and Gas Journal, Tulsa, Okla.

ACCOUNTING EXECUTIVE, now employed, wishes to get new connection after closing out 1929 business for present employer. Ten years experience covering practically every phase of the oil business. Qualified to handle position of Controller, Treasurer, or Assistant Treasurer. Exceptionally well qualified in Budgetary Control, Cost Accounting, and Federal Income Tax matters. Now have charge of accounting for company with 5,000 bbls. production; refinery; casinghead plant; oil pipe line; water system and fuel gas distribution. Best of references. Write Box E-32, The Oil and Gas Journal, Tulsa, Okla.

LAND DEPARTMENT HEAD, age 38, 15 years experience directing casing, rights of way and rental payments. Services available January 1. Address Box E-27, The Oil and Gas Journal, Tulsa, Okla.

EXECUTIVE, 25 years experience, producing, rotary, cable tool, core drills, pipe line and appraisals, age 43, desires connection with growing concern. Prospects more important than salary. Write E-29, The Oil and Gas Journal, Tulsa, Okla.

EXECUTIVE MECHANICAL ENGINEER, age 47, twenty-four years experience, a thorough knowledge of all phases of the oil industry, production, construction, and operation, seeks connection with a new growing oil company. Write Box E-31, The Oil and Gas Journal, Tulsa, Okla.

POSITION as leaseman for major companies. Experienced in Arkansas leasing. Now employed in other work. Wants permanent connection. J. D. Shearer, Stuttgart, Ark.

EXECUTIVE, engineering, mechanical, broad business experience. Thorough knowledge of maintenance and repair, operations and construction. Write Box E-38, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER—Four years' experience as instrument man and party chief in land surveying, pipe line locations and general oil field engineering work. Wants position where ability and experience is needed. References. Write Box E-42, The Oil and Gas Journal, Tulsa, Okla.

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1,800 Acres Allen County, Kansas, ¾ mile 2,000,000-ft. gas well, 350 lbs. pressure. Gas line south of lease $1.50 per acre; 2,940-Acre drilling block in Woodward County, Oklahoma, for well to Wilcox sand; or will give 5 or 10 year lease. Address R. O. Zielinski, 12836 Wood St., Blue Island. Ill.

TEXAS LEASES 25 cents per acre and up in several interesting counties. Own over 75,000 acres. General Investment Company, 321 North St. Mary's Street, San Antonio, Texas.

HAVE TEN ACRE TRACTS in Fee. Leases and Royalties, west Texas oil fields. Joe Cunningham, Big Spring, Tex.

WEST TEXAS mineral lands $2.50. Ten and twenty year leases, $1.25 and $1.50. Joe Cunningham, Big Spring, Texas.

SOUTHWESTERN NEBRASKA. Big play coming. For drilling blocks, leases, royalties, information, write P.O. Box 474, Ogallala. Neb

FOR SALE—New Mexico, Form 40, State Lease. Lea County, NE SW Section 29-17-35e, 40 acres near vacuum well. Eddy County, Section 33-19s-25e, 80 acres, 1¼ miles from R. D. Compton test 20-25. Ernest Beck, Jr., 822 Fayette St., Peoria, Ill.

FOR SALE—Oil and gas leases. New development started — old shallow field, Anderson County, Kansas. Don't write—come. W. L. Morris, Garnett, Kansas.

FOR LEASE—25,000 acres Prospective Oil Land in Coahuila, Mexico. Rights confirmed to owner by Mexican Government. S. R. Gonzales, Naranjo 2, Altavista. Tampico, Mexico.

TWENTY WILDCAT wells now drilling in Gonzales County. For quick sale we offer 1,000 acres or any part along the Gueydan fault one dollar per acre, 10 cents annual rentals. These leases within 3 miles of well to be started on same fault shortly. Get yours today! Crown Petroleum Co., 703 Dallas Nat'l. Bank Bldg., Dallas. Tex.

CORRECTION NOTICE

In the December 5 issue the Classified Advertisement of W. E. Mills, 416-20 Petroleum Building. Oklahoma City, Okla., was erroneously printed. The advertisement should have read: "Will sell 2,000 acres semiproven gas leases, Wheeler County, Texas, and will complete two wells for $35,000."

WILL SELL 2,000 acres semi-proven gas leases in Wheeler County, Texas, and will complete two wells for $35,000. W. E. Mills, 416-20 Petroleum Bldg., Oklahoma City. Okla.

FOR SALE—Drilling Blocks, commercial blocks, royalties, leases, checkerboards, in Hodgeman, Ford, Finney, Trego, Gray, Seward, Stevens and Morton Counties, Kansas. Lou Meyers. Box 471, Dodge City, Kansas. Office Phone 122. Reference any Southwest Kansas bank.

HAVE PROVEN LEASE 300 feet from 1,000-barrel well in Seminole, Okla., area. Will assign good interest for finances help drill well this lease. Address Box 572. Chickasha. Oklahoma.

FOR SALE—A 242-acre oil lease, seven producing oil wells, locations for 25 more; 1,100 ft. Trenton Rock, located eastern Indiana.

Bernindа Oil & Gas Co.,
14 Massa Ave.,
Mansfield. Ohio.

NOTICE OF SALE

There will be a sale of 5 acres undivided interest in and to the W half of the E half of the NW Section 11. Twp. 6n, Range 8e, Hughes County, Oklahoma, and 10 acres undivided interest in and to the W half of the W half of the SE Section 30. Twp. 9n, Range 7e, Seminole County, Oklahoma. Said sale will be for cash in hand to the highest and best bidder, subject to confirmation by the court and will be held in the office of the trustee. 606 Surety Building, Muskogee, Okla., on the 17th day of December, 1929, at 10 o'clock in the forenoon.

George M. Badgett,
Trustee in Bankruptcy.

## LEASES—PRODUCTION

BIG OIL FIELD IN VAN ZANDT COUNTY, TEXAS

I have a number of well located leases and royalties to offer near big field. Write A. L. Farrell, Grand Saline, Tex.

LEA AND CHAVES COUNTY, New Mexico, five-year state oil and gas leases. Low rental, small investment; TERMS. Monarch Inv. Co., Roswell, N. M.

5,000 ACRES to lease for oil test and good structure in Wise County. Sam Pavillard, Decatur, Tex., Route 2.

OIL LEASE for sale. 160 acres, southwest 35-3-10. Drilling close. Mrs. Koons Hodgin. Temple. Okla.

ECTOR COUNTY well came in with 150-bbl. head in 15 minutes. Big play on. Leases and royalty for sale. C. H. C. Anderson. Linz Bldg., Dallas. Texas.

LARGE TRACT oil land Southwestern Arkansas. Ten year paid up lease, cheap. Owner. Box 1629. Tulsa. Okla.

I have group oil properties, production, leases and drilling wells. Will sell outright or sell interest for working capital, wonderful setup for new company, splendid monthly income now. Joseph Steele, 2176 Avenue J., Wichita Falls, Tex.

## WANTED

SUBDIVISION 391 lots, Artesia, N. Mex.; will sell or take partner; mineral right intact; suitable promotion or tourist camp. Hodges, 107½ West Commerce Street. San Antonio. Tex.

SOUTH LOUISIANA
FOR BIG GUSHERS

We want individual or company to join us in drilling two 4,000-foot tests on large block of 40,000 acres in south Louisiana, proven to be on structure by drilling of shallow test wells, also natural gas craters and oil seepage. Will sell acreage or interest in well. For geologist's report and contour map, write MARR DRILLING CO., Box 1304. El Dorado. Ark.

STEEL BUILDING

Want movable steel building about 30 by 60 feet. Prefer 12 feet height. J. L. Nourse, Muskogee, Okla.

WANTED—26-inch lathe, 16-inch lathe, 26-inch shaper, radial drill and complete shop tools. J. L. Nourse, Muskogee, Okla.

INFORMATION WANTED

Owner of 400 acres in Bee County, Texas, located within 3 miles of latest gasser, on similar formation and near pipe line, would like to have test well drilled on property. How can well be financed and where can reliable information be had relative to cost, necessary arrangements and possible returns if gas or oil is found? Answer Box E-36, The Oil and Gas Journal, Tulsa, Okla.

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## ROYALTIES—PRODUCTION

YATES POOL ROYALTY

WILL sell 1 acre or more Sections 10 and 19, Blk. 194, Pecos County at $250.00 per acre. Glen Myers. San Angelo, Texas.

SEND NOW FOR attractive list of leases and royalties owned by us in over ten live Texas Counties. Alamo Investment Company, Box 774, San Antonio, Texas.

OIL LEASES, royalties, producing royalties, and drilling blocks. O. O. Milliken. Box 63. Oklahoma City. Oklahoma.

FOR SALE: Lea County deeded oil royalty. Southeast New Mexico oil leases, low rentals, small investment. Terms; big oil companies active. Win with the winners. Monarch Inv. Co., Roswell, N. M.

PRODUCING ROYALTIES WANTED. We have ample funds available to make quick cash deal on producing royalties if worth the money and titles clear. Western Oil and Royalty Company, 609 San Angelo National Bank Bldg., San Angelo. Texas.

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ROYALTY AND LEASES

Any western Oklahoma Counties; western Kansas, and southeastern Colorado at low prices.
SAIN AND COMPANY
Forgan. Okla. Liberal, Kans.

ARE YOU GOING to take advantage of your opportunity to be in on the next big Oil Play of Texas or will you pass it up and have regrets? Pure Oil Company drilled in big oil well on October 14th, three miles west of Smith County Line in Van Zandt County. Humble-Pure-Texas-Gulf-Sun-Amerada-Mid-Kansas and other large oil companies already have large blocks of Leases in Smith County. Will deliver oil leases for three dollars an acre up. No less than twenty-five acre lease handled. Royalty for eight dollars an acre Base and up. Write Richard R. Yoe. P. O. Box 291. Tyler. Texas.

J. A. WOLF & COMPANY
127 N. Dearborn, Chicago, Illinois.
We deal in Oklahoma Royalties exclusively.

FOR SALE ROYALTY. Hendricks Pool, Winkler County, Texas, close in, cheap. For information write R. G., 446 South Newton St., Denver. Colo.

NEW ROYALTY LIST. Kansas, Oklahoma, Texas. 40-acre tracts, section spreads. Offsets under drilling wells. Harry Haynes, Grantville, Kansas.

KANSAS and West Texas royalty interests. Send today for lists and maps. James R. Haynes. Grantville. Kans.

ROYALTY BARGAINS in Oklahoma, Lincoln and Pott Counties for sale. American Inv. Co., 201 Elks Bldg., Oklahoma City. Okla.

WANT PRODUCING royalties or producing working interests in Kansas, Oklahoma and Texas. Give as full details as possible. Will consider close-in royalties. Write Box E-40, The Oil and Gas Journal. Tulsa. Okla.

FOR SALE—Block of acreage; also some checkerboards. County line Norton-Decatur. Good stuff. A. E. Scheetz, Clayton. Kans.

PERPETUAL DEEDED oil royalty, Lea County, New Mexico. EASY TERMS. Major oil companies playing Lea County for millions. Huge profits possible. Monarch Inv. Co., Roswell, N. Mex.

WE BUY royalties in good active oil areas. Texas-United Royalties Company. 8th Floor, Dallas Nat'l Bank Bldg., Dallas. Tex.

ROYALTIES AND LEASES

Under Humble, Gulf and other MAJOR OIL COMPANY'S Blocks in Henderson County, Texas. This will be a big development and now is the time to get in on the ground floor. Phone, write, wire, or come. W. F. Glenn, Deen Hotel, Athens, Tex.

## ROYALTIES—PRODUCTION

SMALL UNITS producing royalties for small investors. Write 209, Orpheum Bldg., Wichita, Kan.

## REAL ESTATE

WEST TEXAS OIL lands. Fee, lease, royalty. Joe Cunningham, Big Spring, Texas.

FOR SALE—Spanish home with eight rooms, two baths. Den with pool and game tables. Handsomely furnished throughout in harmony with type of architecture. Frigidair. Double garage. Beautiful Park Hill. Address 2405 Loftin Terrace, Fort Worth, Tex.

FOR SALE: Corner property, large lot, consisting of filling station with bulk station attached. Located on corner of Main and Lynn Streets, Pawhuska, Okla. Price $12,500. Terms to suit purchaser. Telephone 2-7191, or write Post Office Box 1929, Tulsa, Okla.

FOR SALE—800 acres in NE corner McPherson County, Kansas, T. 17, R. 1w and R. 2w. W. A. Fross, owner, 942 South Oakland Ave., Pasadena, Calif.

WARRANTED TITLES to real estate in Mexico; in any size bodies from 1,000 acres to 1,000,000 acres, less than 100 miles from state line, 60 cents an acre. Joe D. Cunningham, Big Spring, Tex.

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DELAWARE incorporator. Charters fees small, forms. Charles G. Guyer, 901 Market St., Wilmington. Del

## FOR SALE—MAPS

NEW MAP OF
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Suitable for pocket or desk top, shows counties and producing areas in Oklahoma, Kansas, Texas, Arkansas, Louisiana and Eastern New Mexico. Postpaid for $1.

KELLY MAP CO.
P. O. Box 1773. Tulsa. Okla.

OIL DEVELOPMENT maps, any county in Oklahoma and west Texas. 75c each. State, county and district maps showing oil development. Lindsay Map Co., Franklin Bldg., Oklahoma City. Okla.

## OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
1930 CATALOG NOW READY

Leases, assignments, releases, township books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

(ADDITIONAL CLASSIFIED WANTS ON NEXT PAGE)

# Spot Demand Limited in Chicago Market

## Prices Only Fairly Steady. Kerosene Market Unchanged, Warmer Weather Check on Furnace Oils but Firm Feeling to Prices

By J. B. Waldo

CHICAGO, Dec. 9.—Very little of interest was to be heard in the local market today. The U. S. Motor grade was selling slowly to spot buyers, the demand being limited and prices only fairly steady. Major refiners were holding at 7 to 7¼ cents for the same grade of gasoline which could be had from other sources of supply at 6⅝ to 6⅞ cents. The higher tests, while firmly held, were in only a fair demand. Shipping instructions on contracts were coming to hand in good fashion and only a small percentage were not taking their full requirements. Distributors covering a considerable portion of the territory report a fair gallonage for the season of the year but say that they note the usual seasonal decline. The week end business was quiet although locally the weather was not too cold for comfortable driving.

Kerosene was selling in only a small way with no change on the market on Monday. The return of mild weather had apparently checked the demand for furnace oils. There was some spot buying and many orders for deliveries against contracts but no rush of business. There was a firm feeling to prices for all kinds and grades. Although the first of the month buyers of industrial fuel oil have supplied their wants for December there were quite a number of inquiries in the market today and a steady movement. There were numerous inquiries being made by resellers for future deliveries of the heavy industrial fuel oil especially the 18-22 and near gravities from refiners and for which many sellers were asking 75 cents both to users and for resale.

**Convention Attracts Many Jobbers**

Many jobbers were in the city last week on account of the American Petroleum Institute annual meeting. The organization has received more attention from the independent jobber this season than ever before, partly because of the active work done by the American Petroleum Institute in bringing about the adoption of the code of trade practices and in getting the signatures of the independent oil men to this code.

Regarding the code, many jobbers said they hoped to see it generally observed by the oil industry and to have every organization in it live up to its provisions. One oil jobber stated that if the larger oil companies would act along the lines laid down in the code and not take the matter of correcting unethical practices into their own hands, much would be done to assure the smaller oil man of the fairness of the code.

Judging from what is said by these jobbers and by salesmen of the larger refiners regarding conditions, some concerns are offering marginal contracts with much more liberal provisions than the one offered by most of the larger refiners which provides for a 4-cent guarantee and a market price arrived at by averaging published quotations. The extreme terms said to be offered by refiners is a 7-cent margin under the normal service station price subject only to general changes of the scale and a market based on the low price for the grade of gasoline, published in a named daily commercial paper.

**Low Quotation Fixes Price**

Some dealers and salesmen have stated that contracts were being offered that had a price decided by the low of this daily newspaper rather than the average of this one alone or of several. Good buyers have stated repeatedly that they could always buy at one-quarter of a cent under this published price. Specific instances have been named of contracts which had a guarantee of 5½ cents under service station or with the present spread 4½ cents under the tank wagon price. One jobber is in the market for a contract for a large volume of gasoline over 1930 at 7 cents under the service station price and the low of the published market. In return for this contract that jobber is willing to enter into an agreement to buy an equal quantity in the spot market from his refiner, paying the low of the published quotations. He also agrees to buy during the year in regular monthly deliveries, a large number of cars of the 375 endpoint material, paying for this a price which shall be 3 cents a gallon above the price at the same date for his U. S. Motor gasoline. The jobber states that the freight to his stations from Group 3 will average not to exceed 2½ cents a gallon and he figures that while the refiner who accepts his proposition might lose a little money on some deliveries at the 7-cent margin, he would be making money all the time on the remainder of the contracts.

Another contract which has been closed calls for a 6-cent margin from a near-by, smaller refiner, the customer being a local distributor. On the normal market, the jobber will have a delivered price that will be better than he could get from a more distant refiner. The delivery costs from Group 3 could be 2½ cents a gallon and from Chicago not to exceed one-fourth cent a gallon, so that the refiner saves 2¼ cents on the delivered price of the gasoline. He gives his customer an extra cent on the marginal contract.

**Contracts Affect Price Situation**

This question of contracts is mentioned because it has a great bearing on the price situation and may have important consequences. Many jobbers have not been satisfied with the results of their contracts this season. They insist that their competitors who have bought in the spot market have purchased right through the year more cheaply than their contract price. Even now the contract price for gasoline for shipment over last week was around 7⅛ cents and jobbers were buying in the spot market at 6¾ cents Group 3, and getting what the buyers insist is quality material, "not a complaint made on a single car," to quote one spot buyer.

Obviously there is a certain element of speculation in the making of such wide-margin contracts and the speculation is for both sides to the agreement. For instance, the gasoline output might be so reduced that the market price would advance to what would seem a more reasonable figure based on the price of crude than the present refinery price. These wide margins and the correspondingly small return to the refiner are wholly due to the competition between refiners which is caused by the excess of gasoline.

Occasionally there comes a season in the industry when the demand for gasoline exceeds the supply either the country over or in some important section. But these seasons never seem to last over the year's end and right now in this territory we are having an example of excessive production with a resultant unloading by a leading refinery in this state.

**Spot Demand Fair**

The spot demand last week was fair at best and the quantity moved small. The deliveries on contracts were regular in most cases. Many of the spot orders called for prompt shipment and there was some inquiry for cars rolling which could be diverted but there was really only a routine demand. There was a little better business doing in the higher tests caused by the cold weather which, while it keeps many cars in the garage, brings the demand for the more volatile winter gasoline. Much of this demand is being supplied by the 60-62 400 endpoint with or without a blend of Ethyl Gasoline. The prices for the higher gravities have been steady in this market and that for U. S. Motor has held its own except in such points as it was necessary to compete with the low-priced material being offered in certain parts of this territory. Generally the spot market was 6¾ to 7 cents with the major refiners quoting 7¼ cents. In the competitive sections some buyers were quoted 6⅝ cents, but it was based on a Group 3 cost of 6½ cents for resale for standard material. The conditions in Detroit and surrounding districts are showing no improvement. Prices are reduced and there are all sorts of offers being made to get the going business. Wherever there is competition from local with more distant sources of supply there is price cutting and a more or less chaotic condition which will continue so long as the supply is in excess of the actual consumption.

**Kerosene Dull**

Kerosene is dull and weak in tone. The price is now so nearly that of a good distillate that there will be some harking back of the kerosene supply on the distillate market. The demand for kerosene is just a sort of seasonable filling in for the small stations. Some of the refiners seem to regard the situation as impossible of any improvement and they are holding their price at 4¾ cents while others are offering a good product at 4⅛ cents. The cold weather during the first part of last week brought a greatly increased demand for all grades of burning oil. The cold spell did not last and at the close of the week it was mild again and the market dropped back to a more normal condition for the time of the year. There is some occasion for the thought that with such heavy orders as were placed last week by some of the local distributors there may be accumulation of cars on the tracks here and a general unsettling of the market. The zero weather of last week was general over the territory.

Distillates have not been as strong as other furnace and fuel oils. The offerings have been large and the supply is increased by the lack of demand for finished kerosene. The new oil burners are adapted to operate with a heavier oil than distillate and some refiners believe that it will be only a few years before the demand for distillates will be inconsequential as compared with the demand for gas and fuel oil. Some are holding for 4 cents Group 3, for a good distillate but this is really above the average of the market and right at the close of last week the general asking price was 3⅞ cents, and the demand chiefly for small lots of a car or two here and there rather than any heavy buying.

**Demand for Gas Makers' Oil Quiet**

The demand for gas makers' oil is quiet. Buyers for the larger companies are holding themselves out of the market and drawing on stocks or depending on contracts for what they need. The consumption is large, but improved methods are reducing the necessary quantity of oil to produce the quality of gas that must be supplied. The buyers will not pay the price asked for the straightrun gas oil. The price at which they will resume buying is not stated and probably depends a good deal on market conditions, but 2¾ cents is not an attractive price and 2⅝ cents is no better. Some say that they have been offered a fair grade of U.G.I. gas oil as low as 2½ cents but they did not place any orders. The zero gas oils are strongly held and are not in an overabundant supply. The zero gas oil with a full 32-36 gravity and free from bad odor is one of the most wanted commodities in the entire oil line right now. The lighter colored oils are usually in better demand than the darker grades, but some buyers insist on having the dark oil as they say that their trade believe that it makes a hotter fire. Offerings are light and prices for all zero gas oils are strongly held and some sellers are asking an eighth of a cent more for them. The demand is large and steady.

**Sinclair and Shell Out of Spot Market**

Industrial users of fuel oil in this city were surprised by a notice sent out by the Sinclair Refining Co. to some of its spot customers for fuel oil that the Sinclair Co. would be unable to sell them further supplies of heavy industrial fuels. The Sinclair company has been selling quite freely two grades, the 14-16 and the 17-20 gravities, and large consumers of fuel oil in this district have relied upon them for their supplies. One buyer stated that his concern had been taking three cars a day of late and that it had bought from the Sinclair Refining Co. most of its fuel oil for five or six years. This company and others were seeking other sources of supply and finding it rather difficult to get what they needed.

The Shell organization, which for several years has been a large seller of fuel oil, is also out of the spot market so that the local supplies are much less than they were, just when the demand is growing rather rapidly.

The most wanted product is a good 18-22 oil with a low cold test and not too high a sulphur content. Many will have to take what they can get, which may be more or less unsatisfactory. Both the Sinclair and the Shell organizations have many contract accounts and these will have to be cared for. One reason why both have withdrawn from the spot market is that they have a large quantity due to their contract customers and have little oil available.

**Sinclair Reducing Its Runs**

The Sinclair Refining Co. is reducing its runs and is also running to coke in which it has a large outlet. The result of this reduction in the quantity of fuel

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# Classified Wants

(Continued from Page 127)

**RANCHES AND FARM LANDS**

**ARIZONA**

**Free government land in Arizona now open to homestead. Citizens of United States entitled 640 acres each; also Arizona state school land for sale on 38 years' time. Book of information and laws on receipt of $1 or mailed C.O.D. J. W. Angle. Box 693. Tucson, Ariz.**

FOR SALE—5,000 acres wheat land all in one tract in the heart of the wheat section at $15 per acre. 2.000 acres of this land now in wheat and three-fourths of the crop goes with the deal which should about pay for the land in one year. Also one of the best ranches in the state of Oklahoma; 12,080 acres at $10 per acre, part cash, balance on time if preferred, by owner. 217 Commerce Bldg., Pittsburg, Kansas.

2,120 ACRES IMPROVED VALLEY river blue grass, equipped if wanted. $20 per acre. Arthur, Mountain View, Mo.

1,500-ACRE RANCH in Western Kansas for $16,500. 400 acres bottom land; balance well watered pasture. Am offered $4,000 for an oil lease and one-half my royalty. Wire for details, if interested. J. E. Leader, Topeka, Kans.

# Steady Gasoline Market Seen in East

## Week Marked by Increased Consumption of Domestic Heating Oils and Kerosene Accompanying Cold Wave Along Atlantic Coast

By A. E. Mockler
*New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street*

NEW YORK, Dec. 9.—Increasing consumption of domestic heating oils and kerosene, incidental to the cold wave which has swept the East, has been the principal feature of this week's market for refined products. Aside from a reduction in bright stocks in the lubricating oil branch, price changes on refined products are lacking.

The week has been devoid of new developments, due in large measure to most of the oil leaders attending the American Petroleum Institute meeting in Chicago. Current indications favor a steady market for gasoline and kerosene over the rest of the year, and not much change is looked for in the situation affecting other refined products. Export volume is holding up fairly well, contributing to the stabilized domestic markets.

Gasoline imports, steadily increasing, are coming in for attention in the trade in the East. Imports during October went over the million-barrel mark with a total of 1,026,000 bbls. imported during that month. Imports for the first ten months of the year are more than double those of the comparable months in 1928, totaling 7,168,000 bbls., against 3,574,000 bbls. This condition reflects not only the growing importance of Royal Dutch as a distributing factor in the East, but likewise the start of regular shipments of refined products from the new Pan American refinery at Aruba, Dutch West Indies. Imports of gas and fuel oils, lubricating oils, and paraffin wax have also registered substantial gains during the first ten months of the current year over the comparable totals for the corresponding months in 1928. Thus far, these heavier imports have not caused any material disturbance to the price basis for these products in Eastern markets, this being due, of course, to the fact that they are being assimilated by large organizations with established marketing outlets.

### Gasoline

Tank car movement of gasoline has held up to substantial totals during the last week, notwithstanding the unfavorable weather conditions throughout the greater part of East Coast territory. Principal refiners report that their tank car deliveries are running considerably in excess of anticipated totals for this season of the year, and current indications are that the present basis of 8¾ cents per gallon at local refineries will remain unchanged throughout the balance of the year. The tank car market at South Atlantic terminals remains steady and unchanged at 9 cents per gallon, although this price has been shaded by an eighth to a quarter cent per gallon in some instances.

California gasoline is reaching eastern markets in large volume and while some sellers are quoting a quarter cent premium on this grade over the quotation prevailing on Eastern gasolines, considerable Pacific Coast motor fuel is going out at the 8¾ cents basis. The California product is growing in importance in the eastern market. South American gasoline, which is also coming onto the market in increasing quantities, is being marketed at the regular tank car basis.

Stocks of gasoline held at East Coast refineries are not large, and refiners in most instances are operating on a conservative basis, refraining from accumulating large surplus stocks. This policy has been made necessary by the heavy arrivals of outside gasolines, and is practicable owing to the great flexibility in output which the general utilization of cracking processes gives.

### Tank Wagon Gasoline

Sales of the larger companies have shown further declines during the week, but no general price changes have developed. The recent cut in Buffalo and Rochester was due to local competition which had developed, and did not extend to the remainder of the territory.

Blizzard weather has prevailed over a greater part of the eastern area during the week, both the North and South Atlantic territories being affected. With many roads impassible in outlying sections, consumption of motor fuel has naturally been unfavorably affected.

The feature of the week, according to reports from several sources has been the sharp increase in the demand for premium "cold weather" gasolines, sales of this product running materially ahead of comparable totals for last year.

### Kerosene

Spirited demand for kerosene has developed during the present cold spell, and there is an active market for tank car shipments. Refiners quote 41-43 gravity water white oil at 7¾ cents per gallon and the principal refiners are adhering rather firmly to this basis. Price shading by smaller interests, noted some weeks ago, has not been so prevalent since the current spurt in buying.

East Coast refiners have been experiencing an active export call for kerosene during recent weeks, and while most of this business is in comparatively small lots, the aggregate volume is running into a fairly large gallonage. South American buying has been a feature, while there has been a good movement to Far Eastern markets, where the American cased product sells well, notwithstanding the sharp and growing competition afforded by shipments from Soviet Russia.

There has been no change in the tank wagon situation, in so far as prices are concerned, but demand has shown a substantial increase during the week. Marketers in the New York and New England territories have been doing a heavy business for the past several weeks, but the sudden cold spell in the South Atlantic area has given considerable impetus to consumption in that territory, which normally escapes the most severe cold of the year.

### Lubricating Oils

The principal development this week has been a material easing off in the position of bright stocks, which are offered rather freely after a period of comparative paucity in offerings. Light bright stocks are available here at 55 to 56 cents per gallon, with the dark quotable at 53 to 54 cents. No changes are reported in other eastern cylinder oils. Western bright stock was offered in this market during the week on the basis of 35 to 35½ cents per gallon, bulk, f.o.b. Group 3 refineries. Red and pale oils are coming in for a fair volume of buying on the spot position this week, and prices are steady and unchanged on all grades.

### Fuel Oil

Activity in the bunker oil market is holding up well, and refiners continue to quote the "C" grade at $1.05 per barrel in bulk at Atlantic refinery terminals, plus the usual 5 cents per barrel for lighterage alongside within the harbor limits. Marine consumption is heavy, and refiners have been showing considerable interest in reports that one or two new "super liners" about to be built in Europe, and originally intended for Diesel powering, are to be constructed for steam propulsion. The latest of these, to be constructed for the Navagizone Generale Italiana Line, will be equipped with high pressure superheater turbines, similar to those which drove the Bremen to new world's records. Several other large vessels, construction of which is now projected, are to be similarly equipped. This development, refiners feel, appears to have definitely turned the tide in large liner construction from Diesel power, although it is expected that new transatlantic vessels of ordinary size for both passenger and freight transportation will be largely Diesel-equipped in the future.

Eastern refiners are not actively engaged in any 1930 contracting program, in as much as the great bulk of their fuel oil business for the coming year is already on the books at the present price basis. There is a little contracting for domestic consumption, at current price levels, but activity in booking future fuel oil is not comparable to that of former years when it was a race to get the big marine tonnage on the books.

Industrial and commercial consumption of heavy fuel oil for furnace consumption has been speeded up considerably by the cold weather this week, and the large factory, office, and apartment consumers have been drawing stocks against contracts in a large way.

### Furnace Oil

Sales of domestic heating oils have picked up substantially this week, and marketers have been active in keeping up deliveries. Quotations are firmly held at the following ranges:

New York City, 14-16 oil, 4¼ cents per gallon; 24-26, 6 to 6½ cents; 28-32, 7 to 7½ cents; and 36-40, 9 to 9½ cents per gallon.

New Jersey, 14-16, 4¼ to 4¾ cents per gallon; 24-26, 6 to 6½ cents; 28-32, 6½ cents; 36-40, 9 to 9½ cents.

Brooklyn, prices corresponding to New Jersey schedule.

Westchester, 14-16, 4½ to 4¾ cents per gallon; 24-26, 6½ to 7 cents; 28-32, 7½ cents; 36-40, 9½ cents per gallon.

New England, 14-16 gravity, 4 to 4¾ cents per gallon; 24-26, 6½ to 7 cents; 28-32, 7 to 7¾ cents; and 36-40, 9½ cents per gallon.

All prices for domestic heating oils are tank wagon, delivered.

### Diesel Oil

Refiners are booking 1930 Diesel oil contracts on a sliding scale, with $2, bulk, refinery terminals, as the basis price, and $2.10 per barrel the top price. The principal marine companies are already reported under contract, although several of the smaller lines remain to be covered.

Figures compiled on Diesel oil sales in East Coast territory this year indicate that the gain over 1928 totals will run into a substantial figure. Pending final compilation at the end of the year, refiners are reluctant to disclose their figures, but it is estimated that total volume for the year will show an increase of 25 per cent or more over 1928, with the outlook for 1930 favoring a continued growth in both production and sales.

Industrial demand for Diesel oil on contract for next year is a negligible factor in the present market. The spot quotation continues unchanged at $2 per barrel, bulk, at refinery terminals.

### Gas Oil

Sales have shown improvement during the week. Cold weather has stimulated gas consumption and artificial gas manufacturers in this area have been drawing stocks of gas oil in larger volume to take care of this demand.

Principal refiners are holding the market for 32-36 recycled gas oil at 5¼ cents per gallon, at refinery terminals, with other sellers, quoting their oil as "28 plus," are offering down to 4¾ cents per gallon. There is a good demand for the lower grades of gas oil for domestic heating purposes, and jobbers have been in the market for tank car quantities in good volume during the week. In addition, tank wagon deliveries on the part of the principal marketing companies in the metropolitan territory have been unusually large, current deliveries being reported as running at a new high level. The bulk of this business is under contract, but marketers are still doing a good volume of spot business on domestic heating oils.

California gas oil continues to arrive at East Coast terminals in good volume and is moving steadily into consuming channels.

### Export Markets

An inquiry for a 7,500-ton cargo of gasoline for shipment to France was in the market during the week. The cargo, roughly 50,000 bbls., is to be made up of half 64-66 and half Navy gasoline, and is for shipment out of the Gulf December 25 to January 2. There were no other cargo inquiries reported during the week.

A sale of 20,000 tons of Panuco crude for shipment to United Kingdom-Continent was reported early in the week at 67 cents per barrel, f.o.b. Tampico, exclusive of taxes, and a second 20,000-ton sale was reported made at 70 cents, same basis. This crude, averaging 11-14 degrees gravity, has a heavy asphalt content. The market has firmed up on this unusual activity, with current asking prices 70 to 75 cents per barrel at Tampico, exclusive of taxes.

Export demand for cased gasoline and kerosene has eased off somewhat during the week, but there is still a good movement against orders previously booked for shipment out of East Coast terminals. Export operators are still meeting with considerable competition from Russia in their foreign marketing operations, and this competition is expected to be intensified as Russian production continues to gain.

Paraffin wax buying for shipment abroad has slackened appreciably, and the export market is quiet both here and at the Gulf. There is a little business in the market for shipments before the close of the month, but bid prices are generally so far under refiners' price views that sellers and buyers have been unable to get together.

Lub oil sales have likewise lagged this week, in so far as foreign business is concerned. A little movement in bright stocks is recorded locally, but 600 steam refined and other steam refined cylinder oils are rather sluggish. Red and pale oils continue to move into foreign consuming channels in fair volume.

Export operators are showing considerable interest in the extensive tanker building program which a number of the leading oil companies are undertaking, orders for a total of 20 new ocean-going tankers having been reported placed within the past several weeks, indicating that the major companies are far from pessimistic regarding the outlook for American oil exports.

### Petroleum Exports

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all

(Continued on Page 133)

# PROGRESS

## The Automobile And Airplane Have Supplanted The Horse

## Ancient Methods Give Way To Modern Practice

## ERECO Equipment Has Supplanted Equipment Once Accepted As Supreme

## ERECO Equipment Will Continue To Lead!

ERECO
DUPLEX

ENGINEERING, RESEARCH & EQUIPMENT CO.

Consulting, Research, Design Manufacturing, Construction.
Absorption Plant And Refinery Equipment

LOS ANGELES
1351-57 East 17th Street

TULSA
Exchange National Bank Bldg.
Phone 4-3761

DALLAS
Athletic Club Bldg.
Phone 2-6841

# Natural Gasoline Manufacture

## Determine Propane And Butane Content Of Gasoline Gases

By H. C. Allen
University of Kansas, Lawrence, Kans.*

Although the natural gasoline industry has been in existence a good many years, it has been only the last year or two that real efforts have been made to determine the exact composition of the gases from which the gasoline has been obtained, together with the composition of the residue gases. The usual tests, such as combustion analyses, gravity, absorption in oils, etc., and the different field tests have a certain value but their limitations are well known. The results differ quite widely when made on gases of varying composition and with the variations commonly used in making the tests they leave considerable uncertainty as to the design of a plant and what may be expected in practice. A knowledge of the exact composition of the gases to be treated is desirable when designing a plant, and after a plant has been installed analyses of the raw and treated gases will furnish much valuable information as to proper operating conditions.

The rapidly increasing demand for the propane and butane fractions will also make analyses of this kind valuable, since the usual tests throw very little light on the individual hydrocarbons. Only a small percentage of the propane usually present in natural gas is removed by the absorption plant at the present time, while from 30 to 50 per cent of the butane may be taken out. With a demand for these products there is no doubt but that in the future the design of plants and operating conditions will be materially altered in such a way so as to obtain more of these products, which until now have been undesirable. As a matter of fact, it may not be long before plants will be designed for the purpose of obtaining these two products while any natural gasoline recovered will be considered a by-product.

### Analytical Data

The following data on three natural gasoline plants using mineral seal absorption oil were selected as representing three rather different gases so far as gasoline content is concerned, and it is believed indicate about what may be expected from plants operating on such gases at the present time. Combustion analyses of the gases are also given for the sake of comparison and, as would be expected, the percentages of the constituents calculated in this way are quite different from those actually present in the gases.

It will be noted that the residues obtained from fractionation and combustion methods, which should be identical, are not in very close agreement, while the calculated heating values are fairly satisfactory in this respect. Any strictly additive property should be the same whether calculated from fractionation or combustion analyses, and heating values and gravities are very nearly additive. In each case the percentages of methane and ethane increase in the treated gases, while the higher hydrocarbons decrease, and this is probably true generally in absorption plants.

The actual composition of each raw gas shows a rather regular decrease as we pass from the methane to the higher hydrocarbons, but this is not true in all

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*Presented before the Division of Petroleum Chemistry at the seventy-seventh meeting of the American Chemical Society. Reprinted from Industrial and Engineering Chemistry.

## MONTHLY OUTPUT FOR FIRST TIME MORE THAN 200,000,000 GALLONS

Natural gasoline production in the United States continued its upward climb in October according to the latest report of the Bureau of Mines with a total output of 206,300,000 gallons or an average of 6,650,000 gallons daily. This is an increase of 250,000 gallons daily or 4 per cent over the average for September. Compared with October of last year it is an increase of 1,600,000 gallons daily or 32 per cent.

Compared with September, part of the October increase came from some of the smaller producing states. In the Appalachian area the production jumped from 6,700,000 gallons in September to 8,900,000 gallons in October. The production of Illinois, Indiana and Kentucky jumped from 900,000 gallons to 1,300,000 gallons. The arrival of cooler weather is always accompanied by an increase in production east of the Mississippi River. This is true in practically all areas but it is especially noticeable in eastern states.

Louisiana production also increased rapidly in October, the output for the month totaling 6,300,000 gallons compared to 5,200,000 gallons in September. Several new plants have been recently completed in the North Louisiana area. Most of the new plants have a large capacity.

The three main natural gasoline producing states—California, Oklahoma and Texas—did not show as much change in their output in October as they have in previous months. The daily average production in Oklahoma decreased from 1,973,000 gallons in September to 1,916,000 gallons in October. In Texas the daily production in October was 1,313,000 gallons which compares with daily average of 1,243,000 gallons in September. California production in October for the first time passed the mark of 2,500,000 gallons daily, an increase of 135,000 gallons over the September average.

### Heavy Demand

Natural gasoline manufacturers outside of California enjoyed an exceptionally heavy demand in October and for the country as a whole stocks were reduced from 27,762,000 gallons on September 30 to 20,589,000 gallons on October 31. This decrease for the entire country materialized despite increase in California stocks from 1,443,000 gallons to 1,721,000 gallons.

Oklahoma and Texas manufacturers sold large quantities of natural gasoline

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## A PRACTICAL SUGGESTION

### ABSORPTION PROBLEMS

In absorption problems it is very important that a thorough understanding be obtained of the partial vapor pressure of the various recoverable constituents. The natural law describing the action in the absorber may be stated as follows: "Each particular hydrocarbon continues to dissolve in the absorption oil until its partial vapor pressure in the gas is equal to its partial vapor pressure from the absorption medium." For example, pentane in a mixture of gases will dissolve in the mineral seal oil until its partial vapor pressure from the oil is at equilibrium with its partial vapor pressure in the gas. Each individual hydrocarbon is absolutely independent of all the others.

The factors effecting efficient absorption are: intimacy of contact between gas and oil, sufficient time to establish or approach equilibrium, temperature of oil and gas passing through the absorber, the quantity of oil circulated, the pressure maintained on the absorber and the degree to which the absorption oil has been stripped, together with the oil's other physical properties.

### Types of Absorbers

The intimacy of contact is determined to a great extent by the absorber, of which there are three types, namely, baffled, sieve or perforated plate and bubble cap types. The baffled type is not being installed in the new plants but are still used in some of the older plants with varying degrees of success. Baffling materials such as steel shavings, 1-inch raschig rings and rolled bundles of corrugated sheet iron give very satisfactory results if cleaned occasionally. The objection to this kind of absorber is the possibility of channeling, high initial cost, smaller salvage value and very little flexibility. The sieve type absorbers give extremely intimate contact and make a fine subdivision of gas through the oil and are especially advantageous with low pressure gas. It is claimed that this kind of absorber causes larger losses of oil by entrainment and also has a smaller range in capacity for efficient extraction. The new designed mist extractors should overcome the loss in oil and a manufacturer states that this type will give good results when operating as low as 12 per cent of its rated capacity.

The bubble tray type is used extensively in many new installations because it is very flexible, having a wide range in capacities for gas to be treated, it is not subject to clogging with foreign matter and has a high salvage value. To secure more contact between gas and oil a great variety of complicated bubble caps have been designed and incorporated in the newer types of absorbers.

### Time Factor

The time factor is controlled by the size of the absorber, pressure and volume of gas passing through, and also on the design. The maximum capacity of an absorber to give the best results is such that the velocity will not be greater than 60 linear feet per minute in the unbaffled or free space in the absorber.

A smaller quantity of propane and the butanes are absorbed by decreasing the rate of circulation of oil and a more stable and lower gravity gasoline is therefore generally made by lowering the quantity of circulating oil. In some cases it may be feasible and economical to take advantage of this fact in order to effect selective absorption, to use primary and secondary absorbers or tail gas absorbers.

Pressure is usually interlocked with some other factor controlling the degree of absorption since natural gas is perfectly elastic and also because vapor pressure of the constituents are correspondingly changed by variation of pressure. The absorber capacity is greatly changed by varying the pressure, for example, the capacity of some absorbers is only half as much at 15 pounds as at 45 pounds; and the oil circulation is changed in about the same ratio, but inversely.

The trend in kind of absorption oil is to use a lighter oil with initial boiling point even as low as 350° F. and an end-point of 475° F., because the lighter oil is a better absorbing medium, gives lower pressure, drops through heat exchangers and coils and gives higher heat transfer values in equipment. The lighter oils also have a higher resistance to emulsification.

It is apparent that a more reliable method of testing the lean absorption oil is necessary than ordinary distillation. By this method the oil sometimes shows a low gasoline content for a high vapor pressure oil or a high percentage of gasoline for a low vapor pressure oil. As stated in the introductory paragraph, it is the vapor pressure of the lean oil which controls the absorption and there are cases where lean oils having 2 per cent over at 350° F. give better results in extraction efficiency than oils having three-fourths of a per cent.

## REMODEL EMPIRE PLANT AT ARKANSAS CITY, KANS.

The natural gasoline division of the Empire Oil & Refining Co. is rebuilding a plant located near Arkansas City, Kans. Practically all the present equipment is being replaced and the capacity is being enlarged to 10,000 gallons daily.

The Arkansas City plant built during the World War was one of the first oil absorption gasoline plants in the Mid-Continent. It is located about a mile north of Arkansas City and was erected to treat natural gas originating in the Dilworth Field. For the last few years the output has diminished with the depletion of the field.

Extension of the natural gas pipe line system into the Lovell-Marshall area renewed the flow available at the Arkansas City plant and developed a need for an enlarged capacity. After considerable study as to relocating the plant, decision was made to rebuild on the present site. The fact that virtually all the operating employes were heads of families and had established their homes in Arkansas City among delightful surroundings was an important consideration.

The plant will treat up to 40,000,000 feet of gas daily under peak load in coldest weather, but probably will average about 25,000,000 feet daily over the year. The plant is on the main highway from Arkansas City to Winfield.

### TEXAS PRODUCTION

The following table gives the production of natural gasoline in barrels based on shipments for October:

| | |
|---|---|
| Panhandle District— | |
| Carson County | 73,045 |
| Hutchinson County | 324,530 |
| Gray County | 229,851 |
| Potter County | 1,633 |
| Moore County | 15,265 |
| Wheeler County | 17,522 |
| Total | 661,846 |
| Ranger District— | |
| Eastland County | 126,272 |
| Shackelford County | 22,351 |
| Brown County | 20,634 |
| Stephens County | 107,510 |
| Coleman County | 1,539 |
| Palo Pinto County | 12,498 |
| Jones County | 3,845 |
| Total | 294,700 |
| West Texas District— | |
| Reagan County | 27,541 |
| Howard County | 942 |
| Crane County | 45,445 |
| Total | 73,938 |
| Wichita Falls District— | |
| Wichita County | 51,065 |
| Clay County | 3,629 |
| Wilbarger County | 4,813 |
| Archer County | 7,759 |
| Young County | 16,664 |
| Total | 83,930 |

# Brief Items for Petroleum Refiners

## Sun Company May Transport Gasoline By New Pipe Lines

The Susquehanna Pipe Line Co., a new company which is controlled by the Sun Oil Co., has applied to the Public Service Commission of Pennsylvania for a certificate of public convenience to permit it to transport, store and ship crude oil and refined products by pipe line.

Although no announcement has been made by the Sun company officials as to the purpose of the line, it is believed that it will be used in the transportation of gasoline and other refined products. The Sun company has a 50,000-bbl. refinery at Marcus Hook, Pa., with large distribution of its products throughout Pennsylvania.

The action of the Sun company follows that of the Standard Oil Co. of New Jersey, which through a subsidiary company, the Tuscarora Pipe Line Co., is completing arrangements to transport gasoline in a line which extends through New Jersey and Pennsylvania.

The Susquehanna pipe lines will begin in Delaware County near Linwood and will extend to a point near Beaver Falls on the Pennsylvania-Ohio state line with a connecting line from a line or lines at Coatesville extending to, at or near Scranton and the Pennsylvania-New York state line and connecting line therefrom at Reading extending to Allentown and another connecting line extending from line or lines at Elizabethtown to York.

The company has $25,000 capital and the incorporators are J. Howard Pew and J. N. Pew, Jr., of Ardmore, and Frank Cross of Merchantville, N. J.

## BID ON 1930 MOTOR FUEL FOR CHICAGO POST OFFICE

CHICAGO, Dec. 7.—The Chicago post office has received bids for supplying gasoline to its motor vehicle department for the first three months of 1930. The bids name a flat price in tank car lots, f.o.b. Group 3, and a differential price based on the tank car market at the date of shipment. The Seneca Petroleum Co. bid 6½ cents for the first month and 7 cents for the second and third month in the flat price bid. Its price based on the market was one-eighth cent below the tank car market with a maximum of 7 cents. The Jewett & Sowers Oil Co. did not make a flat price but bid one-eighth cent above the tank car market. The Shaffer Oil & Refining Co. made a flat price for the three months of .0729 cents and bid the tank car market for the second choice with the same price as its maximum that might be charged.

For tank wagon deliveries the Anchor Oil Co. bid 3 cents below the normal tank wagon price for Chicago with a maximum of 13 cents. The Shaffer Oil & Refining Co., 10 cents for the three months or 4 cents below the tank wagon price and the Standard Oil Co. of Indiana bid 11 cents over the period with a differential price of 3 cents below the normal, local tank wagon price with no maximum. The Jewett & Sowers Oil Co. has the contract for the current quarter. The contract will not be awarded for another week or 10 days.

### GRISWOLD TO TULSA

Eugene Griswold, who was recently appointed sales manager of the Burford Oil Co., of Pecos, Tex., will open a general sales office in Tulsa about January 1. Mr. Griswold will have charge of sales for the company's refinery located at Pecos.

## SHOULD CURTAIL REFINERY RUNS TO PREVENT EXCESSIVE STORAGE

The petroleum industry is now entering its regular period of accumulation of finished products, particularly gasoline. If recent history is to be repeated, this accumulation will be excessive, says The Lamp, official publication of the Standard Oil Co. of New Jersey. In a sort of blind confidence that there will be a market for the products, that each company will secure a portion of the business of the others, the individual units, large and small, will set in motion a sequence of events that will bring about a repetition of unsatisfactory results.

If the units of the refining industry adopt a conservative attitude in their estimates of the prospective increase in markets until such time as the peak demand materializes, crude producers will not be encouraged to add to an excess of supply. Voluntary proration will then become of benefit to the industry and public alike with no other results than that the costly reserves of crude and products above ground will be reduced.

But let us look at the other side of the picture: If the United States continues in 1930 to produce and import crude on present schedules, part of it must be stored during the first half of the year unless the refineries insist on carrying it in the form of products at the risk of price reductions. During the latter six months, at present rate of production, stocks of both crude and products will be reduced, provided there is an increase in consumption of more than 3 per cent, but the reduction will hardly exceed the amount stored during the first six months.

Manufacturing too much gasoline in the early few months has often cost refiners a profitable year's business. They are now going at almost top speed in spite of the fact that in 1929 the country added to gasoline stocks 7,000,000 or 8,000,000 bbls. after caring for a consumption gain that greatly exceeded all early expectations.

The industry enters 1930 with a very large increase in stocks. No oil man acquainted with recent developments is optimistic enough to expect in 1930 anything like the gain in gasoline consumption experienced in the last two or three years, particularly in 1929.

Stocks of crude and products have been excessive for several years. At the end of 1929 they are larger than ever, since something like 70,000,000 bbls. were added to the 620,000,000 bbls. above ground at the beginning of the year.

The worst mistake that can be made is the assumption that the cure for all evils has been effected through the curtailment of crude production. Unfortunately, that is only half the remedy and the most important part is to see that runs of crude to refineries are reduced to the point where there is no undue increase in stocks of products. The most healthful thing that could happen to the industry today in the absence of greater consumption would be the decision of each and every refiner in the country to do his share in an honest effort to prevent any increase of stocks in products in his district. As refiners increased their stocks of products and partly finished oils by 30,000,000 bbls. in 1929, is is not difficult to see what a small increase in refinery output is necessary in 1930 to avoid adding further to stocks.

## OLD DUTCH COMPANY TO LEASE SIMRALL LINES

MUSKEGON, Mich., Dec. 7.—Gathering lines of the Simrall Pipe Line Corp. in the Muskegon oil field have been leased to the Old Dutch Refining Corp. for a period of three years, it was announced here today by W. F. Simrall of Cincinnati. The Simrall pipe line system includes about 14 miles of 2 to 8-inch pipe and is valued at $125,000. It also includes three storage tanks on M-20 in Section 8, Muskegon Township with an aggregate capacity of 57,500 bbls.

Under the contract the Old Dutch Refining Co., operators of the largest refining plant in the Muskegon Field, will operate the Simrall lines and will run the crude under contract to the Cincinnati corporation. The new arrangement gives the Old Dutch company control of more crude than any other purchaser with an average daily run of about 3,300 bbls. The Old Dutch has a present average crude run of about 1,500 bbls. a day which will be increased to the new total of 3,300 by the 1,800-bbl. daily average run of the Simrall line.

### ORGANIZE BENZINE PRODUCERS

NEW YORK, Dec. 7.—Principal European benzine producers, meeting recently in Paris, have organized a central committee for the establishment of standard grades, propaganda activities for the greater use of benzine as a motor fuel, and research on the improvement of benzine motor fuels. Uniform prices may later develop, it is reported. The meeting was attended by leading producers in France, Ireland, Great Britain, Germany, Belgium, Holland, Luxemburg and the Saar. Headquarters of the central committee will be in Paris, and the organization will meet next in London in June, 1930. M. H. Laurain, managing director of the Paris Gas Co., is chairman of the committee.

Further development of the organization, it is reported, contemplates the establishment of branch offices in each country affiliated with the cartel.

## WADHAMS AND BARTLES-MAGUIRE TO OPEN OFFICE

W. P. Jacobi, who has been manager of purchases for the Wadhams Oil Co. with offices in Milwaukee, Wis., will be in charge of an office which will be opened in Tulsa, January 1. Mr. Jacobi has been appointed manager of the petroleum purchase division of the Wadhams Oil Corp. and the Bartles-Maguire Oil Co. and will have his headquarters at 703 Philcade Building, Tulsa.

Mr. Jacobi for several years was located in Tulsa representing the purchasing department of the Wadhams corporation and is well known among Mid-Continent refiners. He will have charge of all purchases of refined oils, natural gasoline and crude oil.

The Wadhams corporation and the Bartles-Maguire company both of which are large marketers in Wisconsin and the Chicago area were merged last summer. Under a reorganization plan which has been worked out both companies will retain their names. The Bartles-Maguire company operates a refinery at East Chicago, Ind. Crude oil deliveries to the refinery from the Mid-Continent via the new pipe line of the Texas-Empire Pipe Line Co. will start this month.

## Involve Tetraethyl Processes in Suit Filed in Nebraska

DENVER, Colo., Dec. 7.—The General Research Corp. of America, a Delaware corporation with headquarters in Denver, has filed a suit in the Douglas County District Court at Omaha, Neb., against the Ethyl Gasoline Corp., also a Delaware corporation, in which it seeks to collect $10,000,000 in royalties on 100,000,000 pounds of tetraethyl lead which it is alleged the defendants have produced up to this time under a process owned by the plaintiff. Counsel for the plaintiff says that orders of attachment were issued and served on the Tidal Refining Co., the Shaffer Oil & Refining Co., the Phillips Petroleum Co., the Independent Oil & Gas Co., the National Refining Co., and the White Eagle Oil & Refining Co. It is intended also to serve the Continental Oil Co. The garnishment answers are returnable on December 20.

The complaint states that on or about June 25, 1926, the American Research Laboratories, Inc., a Colorado corporation, was the owner of a certain process for the manufacture of tetraethyl lead covered by patent applications as filed and shown by the records of the United States Patent Office, and was at that time actively engaged in the manufacture of the product. The patent applications mentioned are Serial Numbers 128,909, 128,910, and 109,347, all of the series of 1925. On about that date the American Research Laboratories, Inc., the owner of said process, entered into an oral contract with the Ethyl Gasoline Corp. to fully disclose said process to it and permit defendant to use it for every purpose and that the American Research Laboratories, Inc., would refrain from using said process for its own account in competition with defendant, or otherwise. In consideration for said disclosure and permission, the defendant promised to pay and the plaintiff agreed to accept ten cents upon every pound of tetraethyl lead used, directly or indirectly, by the defendant, however secured or made, except on an unknown amount then under contract from the Dupon Co., stated by the defendant to be not more than 500,000 pounds. Terms of payment provided that these should be made monthly beginning when the unknown Dupont supply was exhausted.

This contract, the complaint alleges,

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### TIDE WATER SELLS PLANT

The Tide Water Oil Co. has sold its interest in the refinery at Bradford, Pa., formerly owned by the Emery Manufacturing Co., to the South Penn Oil Co. The Tide Water and South Penn companies bought the plant last summer in a deal which included producing and pipe line properties.

The South Penn company is now the sole owner of the refinery. The plant was shut down last summer. The new owners have not decided what disposition will be made of the refinery.

### SPARTAN ENTERS CHICAGO

CHICAGO, Dec. 10.—The Spartan Petroleum Co., with offices in the Straus Building of this city, is about to enter the distributing business in Chicago and suburbs on a large scale. William Jervis is president, and F. L. Hawekotte is vice president. Both were for years connected with The Texas Company and for a brief period with the Marland Refining Co. They have bought a number of stations and are planning to add to the number both by purchase and building.

## SPOT DEMAND LIMITED IN CHICAGO MARKET

(Continued from Page 128)

oil available from the local plants has been to drive the consumer and the reseller to seek supplies at greater distance, for which they will have to pay a higher price. Some of the tank car distributors who have their own contracts to carry out with users have withdrawn their offerings and will not sell any more fuel oil, reserving what they have already bought for their contract customers. It is too soon to say just what will be the result of this restriction of the supply from local plants but it cannot be without an important effect. The demand is good and the movement large and increasing as the weather grows more chilly and more heat is required. The prospects are for an unusually large consumption of industrial fuels in this territory. Just where they are going to come from is a question.

Refiners from all parts of the country from which their fuel oil could be shipped into this territory have been asked for fuel oil and in most cases have replied that they had no fuel oil to sell over this month and the conditions will have to be radically different if they are to have any fuel oil for January as runs are being reduced and the production is limited. There may be some less cracking of fuel oils which will help if it really releases any quantity of desirable fuel oil. The supply will be governed to some extent by the price and if it goes high enough the supply is bound to increase in some degree. Both the Sinclair and the Shell management say they are unable to tell when they will have any supply of the heavy industrial fuel oils for the spot buyer.

**Heavy Fuel Oil Prices Working Upward**

The prices on the heavy fuel oils have been working upward slowly but steadily. At the close of last week a good 18-22 fuel oil either low in sulphur with a fair cold test or an oil with more sulphur but a zero cold test, were held for at least 75 cents by many sellers of this grade of oil. Some have stocks which cost them less than this price but until they are assured of a further supply they will want to conserve what they have due them by refiners. Actually there has been more of the 28-30 zero fuel oil offered than of the 18-22 for the last few days, not in volume of course, but several are offering the former while there were almost no offers of a good 18-22 fuel oil. There is really no great abundance in this market of any grade of fuel oil and in view of the colder weather and the various happenings of last week there is a decided tendency to conserve available supplies which if continued must result in some advances in prices especially for the zero fuel oils.

Bright stocks are being contracted for by compounders and refiners and in fact all of the producers of motor oils with no supply or an insufficient supply of their own. The market on contracts for next season is being firmly held and sellers say that they are doing a large advance business and are getting pretty well contracted up for the season of the year. They are holding some material for later business. The sole price reported is at the market date of delivery with a maximum of 39 cents and a minimum of 33 cents. Regarding neutrals and other refinery stocks there is no change. The demand for motor oils is quiet.

**Cold Weather Reduces Gallonage**

The colder weather has reduced the gallonage of the distributors of gasoline over this territory but there is still good consumption for the time of the year. The widely advertised antiknock fuels are selling well although the manufacturers of the lead compound which is the base of one of the most popular do not claim for it any special cold weather value any more than they do the power for removing carbon. Many of the present most popular gasolines are a 60-62 400 endpoint product and during the American Petroleum Institute meeting last week some of the refiners engaged in a private discussion over the question whether the 400 endpoint gasoline would not displace the present 437 endpoint motor fuel just as the latter had superseded the 450 endpoint material. They rather seemed to think that it would.

There has been little talk regarding the tank wagon situation of late and it seems to be agreed that the present scale in this territory is likely to run over into next year. There is no definite understanding to that effect but it is now so near the end of the year that a reduction in price which would force a lowering of all inventories is not likely to take place during the current month. There is really no reason for a reduction in the present market unless it be the low refinery prices brought about by too much gasoline, not so much in any one refining section of the country as in all of the refining centers. The central states have seemed to be in the best position but in this state refiners have found it desirable to unload some of their inventories.

## GASOLINE MARKET SEEMS STEADY IN THE EAST

(Continued from Page 129)

figures in gallons unless otherwise noted):

| | Week Ended | | |
|---|---|---|---|
| | Nov. 30 | Nov. 23 | Nov. 16 |
| Gasoline | 264,000 | 156,000 | 21,000 |
| Naphtha | 160,000 | 580,200 | 798,600 |
| Kerosene | 29,200 | 158,300 | 232,000 |
| Fuel oil | 186,000 | 1,518,500 | 932,000 |
| Lubricating oil | 2,560,000 | 1,563,900 | 1,416,800 |
| Petroleum, refined | 105,000 | 675,800 | 534,500 |
| | Pounds | | |
| Petrolatum | 8,200 | 27,000 | 32,600 |
| Paraffin wax | 2,185,000 | 801,400 | 887,300 |
| Refined | 13,000 | 412,000 | 25,000 |
| Scale | 380,000 | 62,300 | 945,200 |
| Lubricating grease | 897,200 | 835,200 | 1,519,200 |

Export movement of gasoline for the first ten months of the year has been substantially in excess of that for the corresponding months in 1928, totaling 51,150,000 bbls., against 44,429,000 bbls. Kerosene exports for the ten months' period fell off from 18,707,000 bbls. last year to 17,017,000 bbls. for the ten months ended October 31, 1929. Gas and fuel oil exports were also off at 31,581,000 bbls. against 37,839,000 bbls., while lubricating oil exports showed a slight gain at 9,462,000 bbls. against 9,282,000 bbls. Paraffin wax exports were sharply lower at 265,449,000 pounds for the first 10 months of 1929, against 340,927,000 pounds in the comparable months of 1928.

**Imports**

Imports of crude and refined petroleum oils at the principal United States ports for the week ended November 30, totaled 1,272,000 bbls., a daily average of 181,714 bbls., compared with 1,942,000 bbls., a daily average of 277,428 bbls. for the previous week and a daily average of 274,857 bbls. for the four weeks ended November 30. Details follow:

| | Bbls. of 42 Gals. |
|---|---|
| At Atlantic Coast Ports— | |
| Baltimore | 195,000 |
| New York | 488,000 |
| Philadelphia | 218,000 |
| Others | 144,000 |
| Total | 1,045,000 |
| Daily average | 149,286 |
| At Gulf Coast Ports— | |
| Galveston District | 67,000 |
| New Orl'ns & Baton Rouge | 160,000 |
| At all United States Ports— | |
| Total | 1,272,000 |
| Daily average | 181,714 |
| Daily average four weeks. | 243,714 |

According to data compiled by the Department of Commerce, imports of crude petroleum for the first 10 months of 1929 aggregated 68,493,000 bbls., as compared with 66,052,000 bbls. in the comparable months of 1928.

**Paraffin Wax**

Prices have shown no further change this week, but the market undertone remains easy. Domestic trade is quiet, reflecting the usual year-end slackening in buying, and export sales are also small, with export operators materially underbidding the market. On crude scale, 3 cents is bid this week for 122-124, against an asking price of 3⅛ cents, and an actual selling price of 3⅜ to 3½ cents per pound a few weeks ago. While refinery stocks are fairly large, refiners are not disposed to meet the prevailing low bids of buyers, and a dull market is the inevitable result.

**California Oil Receipts**

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended November 30, totaled 509,000 bbls., a daily average of 72,714 bbls., compared with 553,000 bbls., a daily average of 79,000 bbls. for the previous week and a daily average of 84,143 bbls. for the four weeks ended November 30. Details follow:

| | Bbls. of 42 Gals. |
|---|---|
| At Atlantic Coast Ports— | |
| Baltimore | 119,000 |
| New York | 390,000 |
| Total | 509,000 |
| Daily average | 72,714 |
| At Gulf Coast Ports— | |
| None | ..... |
| At Atlantic & G. C. Ports— | |
| Total | 509,000 |
| Daily average | 72,714 |
| Daily average four weeks. | 84,143 |

Distribution of total California oil receipts is as follows:

| | |
|---|---|
| Gasoline | 498,000 |
| Lubricants | 11,000 |

Shipments of refined products from Los Angeles for the East Coast reported during the past week included the following:

To New York—83,000 bbls. of gas oil on the Atlas; 49,000 bbls. of kerosene on the Republic; 78,000 bbls. of gasoline on the Paul Shoup; 79,800 bbls. of gasoline on the Dean Emery; and 82,100 bbls. of gasoline on the Hampton Roads.

To Philadelphia—78,500 bbls. of gasoline on the Atlantic Sun.

To Baltimore—77,300 bbls. of gasoline on the Franklin K. Lane.

To Providence—72,800 bbls. of gasoline on the New York.

## MUCH ACCOMPLISHED AT A.P.I. MEETING

(Continued from Page 39)

these will be incorporated in the plans for the test program.

Many other subjects were discussed at the meeting of the General Committee. Walter Samans of the Atlantic Refining Co., Philadelphia, Pa., chairman of the Committee on Refinery and Marine Corrosion, summarized the work of the 10 subcommittees studying the corrosion problems in these divisions of the industry. E. P. Bly of the Standard Oil Co. of California, chairman of the Committee on Production and Pipe Line Corrosion, summarized the committee work for the year. Dr. Gordon N. Scott, A.P.I. research associate at the United States Bureau of Standards, submitted his report to the committee.

The General Committee recommended to the American Petroleum Institute that Doctor Scott be continued at the Bureau of Standards for the purpose of continuing the study of causes and prevention of corrosion and especially to supervise the application of coatings to be tested in accordance with the co-operative plan. The committee further recommended that additional funds be provided to obtain the assistance of soil experts in the study of causes of corrosion.

A number of minor changes were suggested in the wording of the A.P.I. Code of Good Practice in the Field Application of Hot Bituminous Coatings to Underground Pipe Lines. The General Committee voted to leave the code in its present form for the present time and that the suggested changes should be referred to Doctor Scott, who should consider them and prepare a revised edition of the code. The General Committee recommended the continuation of the corrosion record and circulation of abstracts to contributors. It was reported that more than 550 records of specific cases of corrosion had been received during the past two years.

K. H. Logan of the Bureau of Standards spoke on other phases of the corrosion activities of the bureau, one of which is being conducted under the sponsorship of the American Gas Association.

Plans were made to develop a scheme for the circulation of a corrosion bulletin to members of the committee and interested corrosion contact men in the industry.

It was agreed that an intensive study of corrosion of production equipment should be made during the coming year and the results of the study would be presented as a paper at the next annual meeting of the American Petroleum Institute.

**Three-Cornered Tests**

In the three-cornered tests to be made this year under supervision of the Bureau of Standards, the coatings to be used will be manufactured according to specifications of the Bureau of Standards. The purpose of the tests is not to compare coatings. Only proprietary coatings will be used in these tests, they being coal tar, asphalt, asbestos and rag felt. Research work will be done to endeavor to determine what causes coatings to fail and when this failure occurs; etc.

Combinations of these proprietary coatings will be used in the tests, probably, that is one test may use all four of the above mentioned coatings; another may use only three while others may use two or only one.

The work will be done in co-operation with the pipe line industry. Companies will be canvassed for desirable sites on which to conduct the tests. Soils of different textures and wide range of corrosiveness will be chosen, if possible, and the United States Bureau of Chemistry and Soils will be asked to aid and pass on soil conditions, etc.

The work will be done as under actual pipe line operating conditions, wherein these tests will differ greatly from those conducted through the American Gas Association. In each test, one section of the pipe will be left without coatings and new pipe will be used in all tests. In addition to coating the pipe line, nipples will be used and these nipple tests will supplement tests on the main lines. It is expected the tests will show what added life may be expected for a line which is coated and the rate of pitting of pipe.

## ENGINEERS' SECTIONS MEET AT BARTLESVILLE

The Engineers Club of Bartlesville, Okla., is arranging a joint technical meeting for the afternoon and evening of Tuesday, December 17. Invitation has been accepted by the Joplin-Miami section and the Mid-Continent section of the American Institute of Mining and Metallurgical Engineers to participate and it is expected a good delegation from each section will be present.

The United States Bureau of Mines Experimental Station at Bartlesville plans to demonstrate the air-lift apparatus recently installed at the station, and this test is scheduled for 4 p.m. Tuesday afternoon and will require about two hours to complete. The visiting engineers have been asked to be present, and after supper the evening session will start in the Doherty Men's Club rooms, with a paper prepared by John T. Hayward, consulting engineer, Tulsa, on "Mud Fluid Pressures in Rotary Drill Pipe," and a paper on "Floatation Practice in the Joplin-Miami Zinc District," by C. O. Anderson, chairman of that section. Invitation is extended to anyone interested to attend these meetings.

### EGYPTIAN PERMIT REFUSED

NEW YORK, Dec. 9.—The Egyptian government has refused the application of Shell Transport & Trading Co. for a permit to construct a pipe line from Suez to Cairo, according to reports from Cairo.

### MAURICE A. OUDIN DEAD

Maurice A. Oudin, 63, vice president of the International General Electric Co., died of pneumonia in his home in Schenectady, N. Y., on December 4.

# REFINERY AND CRUDE PRICES

**Quotations on refined products are for interstate or export movement unless otherwise noted.**

## GASOLINE AND NAPHTHA

| OKLAHOMA (Group 3)— | Dec. 10 | | Dec. 3 | | Nov. 26 | |
|---|---|---|---|---|---|---|
| 50-52 450 endpoint | .06¾ | .07 | .06¾ | .07 | .06¾ | .07¼ |
| *56-58 450 endpoint | .06½ | .06¾ | .06⅝ | .06¾ | .06¾ | .07¼ |
| *58-60 437 endpoint (U. S. Motor) | .0725 | | .0722 | | .0724 | |
| *60-62 437 endpoint | †.0725 | | .0725 | | .0750 | |
| *60-62 400 endpoint | .075 | | .0753 | | .0750 | |
| *64-66 375 endpoint | .0779 | | .08 | | .0813 | |
| 68-70 360 endpoint | .08⅛ | .08¼ | .08⅛ | .08¼ | .08 | .08¼ |
| 64-66 437 endpoint (blend) | .07 | .07¼ | .07 | .07¼ | .07¼ | .07½ |
| NORTH TEXAS— | | | | | | |
| 56-58 450 endpoint | .06½ | .06¾ | .06⅝ | .07 | .06¾ | .07 |
| 58-60 460 endpoint | .06½ | .06¾ | .06⅝ | .07 | .06¾ | .07 |
| 58-60 437 endpoint (U. S. Motor) | .06½ | .07 | .06¾ | .07 | .06¾ | .07 |
| 60-62 400 endpoint | .07¼ | .07⅜ | .07¼ | .07⅜ | .07¼ | .07⅜ |
| 64-66 390 endpoint | .07½ | .07¾ | .07⅝ | .07¾ | .07⅝ | .07¾ |
| 64-66 375 endpoint | .07¾ | .08 | .07¾ | .08 | .07⅞ | .08 |
| 68-70 360 endpoint | .08⅛ | .08¼ | .08 | .08¼ | .08 | .08¼ |
| 64-66 437 endpoint (blend) | .07⅛ | .07¼ | .07⅛ | .07¼ | .07⅜ | .07½ |
| *NORTH LOUISIANA— | | | | | | |
| 58-60 437 endpoint (U. S. Motor) | .07¼ | | .07¼ | .07½ | .07⅝ | |
| *ARKANSAS— | | | | | | |
| 58-60 437 endpoint (U. S. Motor) | .07 | .07¼ | .07¼ | | .07½ | |
| PENNSYLVANIA— | | | | | | |
| 52-54 Naphtha | .07¼ | .07½ | .07¼ | .07½ | .07¼ | .07½ |
| 54-56 Naphtha | .07¼ | .07½ | .07¼ | .07½ | .07¼ | .07½ |
| 58-60 Gasoline | .08 | .08¼ | .08 | .08¼ | .08 | .08¼ |
| 60 Gasoline | .08 | .08½ | .08 | .08½ | .08 | .08½ |
| 62 Gasoline | .08½ | .08¾ | .08½ | .08¾ | .08½ | .08¾ |
| 64 Gasoline | .09 | .09¼ | .09 | .09¼ | .09 | .09¼ |
| 68-70 350 endpoint gasoline | .10¼ | .10½ | .10¼ | .10½ | .10¼ | .10½ |
| CALIFORNIA— | | | | | | |
| 58-60 437 endpoint (U. S. Motor) domestic. | .09 | .10 | .09 | .10 | .09 | .10 |
| CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| 50-52 450 endpoint (Naphtha) | .06¾ | .07 | .06¾ | .07 | .06¾ | .07 |
| 56-58 450 endpoint | .06⅝ | .06⅞ | .06⅝ | .06⅞ | .06¾ | .07 |
| 58-60 437 endpoint (U. S. Motor) | .06⅝ | .07¼ | .06⅝ | .07¼ | .06⅝ | .07¼ |
| 60-62 400 endpoint | .07¼ | .07½ | .07¼ | .07½ | .07⅜ | .07⅝ |
| 64-66 375 endpoint | .07⅝ | .07⅞ | .07⅝ | .07⅞ | .07⅝ | .08¼ |
| 68-70 360 endpoint | .08⅛ | | .08 | .08¼ | .08 | .08¼ |
| 64-66 437 endpoint (blend) | .07¼ | | .07¼ | | .07¼ | |
| GULF COAST (Export)— | | | | | | |
| 58-60 (U. S. Motor) | .08½ | | .08½ | | .08½ | |
| 60-62 400 endpoint | .09½ | | .09½ | | .09½ | |
| 61-63 390 endpoint | .09¾ | | .09¾ | | .09¾ | |
| 64-66 375 endpoint | .10 | | .10 | | .10 | |

*Weighted average prices December 9 and 2 and November 25 as reported by representative refiners. Sales to jobbers only. †No sales reported.

*Louisiana, Arkansas, Mississippi and East Texas delivery.

## NATURAL GASOLINE

| OKLAHOMA (Group 3)— | Dec. 10 | | Dec. 3 | | Nov. 26 | |
|---|---|---|---|---|---|---|
| Grade A, 72-79.9, 375 e.p., rec. 90% | .06¾ | | .06⅞ | .07 | .06¾ | .06⅞ |
| Grade AA, 80-87.9, 375 e.p., rec. 90% | .06⅝ | .06½ | .06¾ | | .06¾ | |
| Grade B, 76-83.9, 375 e.p., rec. 85% | .06 | | .06¼ | | .06¼ | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .06 | | .06¼ | | .06¼ | |
| Grade C, 80-90, 375 e.p., rec. 78% | .05¾ | .06 | .06⅛ | | .06⅛ | |
| NORTH TEXAS— | | | | | | |
| Grade A, 72-79.9, 375 e.p., rec. 90% | .06¾ | | .06⅞ | .07 | .06¾ | .06⅞ |
| Grade AA, 80-87.9, 375 e.p., rec. 90% | .06⅝ | .06½ | .06¾ | | .06¾ | |
| Grade B, 76-83.9, 375 e.p., rec. 85% | .06 | | .06¼ | | .06¼ | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .06 | | .06¼ | | .06¼ | |
| Grade C, 80-90, 375 e.p., rec. 78% | .05¾ | .06 | .06⅛ | | .06⅛ | |
| NORTH LOUISIANA— | | | | | | |
| Grade AA, 80-87, 375 e.p., rec. 90% | .07 | .07¼ | .07¼ | | .07¼ | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .06½ | .06¾ | .07 | | .07 | |
| Grade C, 80-90, 375 e.p., rec. 78% | .06¼ | .06½ | .06¾ | | .06¾ | |
| CALIFORNIA— | | | | | | |
| 75-78 375-390 endpoint | .07¾ | .08¼ | .07¾ | .08¼ | .07¾ | .08¼ |
| CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| Grade A, 72-79.9, 375 e.p., rec. 90% | .06¾ | | .06¾ | .07 | .06¾ | .06⅞ |
| Grade AA, 80-87.9, 375 e.p., rec. 90% | .06½ | | .06¾ | | .06¾ | |
| Grade B, 76-83.9, 375 e.p., rec. 85% | .06 | | .06¼ | | .06¼ | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .06 | | .06¼ | | .06¼ | |
| Grade C, 80-90, 375 e.p., rec. 78% | .05¾ | .06 | .06⅛ | | .06⅛ | .06¼ |

## BURNING OIL

| OKLAHOMA (Group 3)— | Dec. 10 | | Dec. 3 | | Nov. 26 | |
|---|---|---|---|---|---|---|
| 41-43 water white kerosene | .04¼ | .04¾ | .04¼ | .04¾ | .04⅜ | .04¾ |
| 42-44 water white kerosene | .04½ | .04¾ | .04½ | .05 | .04¾ | .05¼ |
| NORTH TEXAS— | | | | | | |
| 41-43 water white kerosene | .04⅛ | .04¼ | .04⅛ | .04¼ | .04¼ | .04⅜ |
| 40-42 water white kerosene | .04 | .04¼ | .04 | .04¼ | .04 | .04¼ |
| *NORTH LOUISIANA— | | | | | | |
| 41-43 water white kerosene | .05 | | .05 | | .05½ | |
| *ARKANSAS— | | | | | | |
| 41-43 water white kerosene | .05 | | .05 | | .05½ | |
| PENNSYLVANIA— | | | | | | |
| 43 Kerosene prime white | .06¼ | .06⅜ | .06¼ | .06⅜ | .06¾ | .07 |
| 45 Kerosene water white | .06¼ | .06⅜ | .06¼ | .06½ | .06¾ | .07 |
| 46 Kerosene water white | .06⅝ | .06⅞ | .06⅝ | .06⅞ | .06¾ | .07 |
| 47 Kerosene water white | .06¾ | .07 | .06¾ | .07 | .07 | .07¼ |
| 300 Mineral Seal | .07 | .07¼ | .07 | .07¼ | .07 | .07¼ |
| CALIFORNIA— | | | | | | |
| 38-40 water white Kero. (high burning test) | .05 | .05½ | .05 | .05½ | .05 | .05½ |
| Engine distillate, 43-44, 445 endpoint | .07 | .07½ | .07 | .07½ | .07 | .07½ |
| Engine distillate, 42-44, 480 endpoint | .06¾ | .07¼ | .06¾ | .07¼ | .06¾ | .07¼ |
| CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| 41-43 water white kerosene | .04¼ | .04½ | .04¼ | .04½ | .04¼ | .04½ |
| 42-44 water white kerosene | .04⅝ | .05 | .04¾ | .05 | .04¾ | .05 |
| GULF COAST (Export)— | | | | | | |
| 41-43 prime white | .07 | | .07 | | .07 | |
| 41-43 water white | .08 | | .08 | | .08 | |

*Louisiana, Arkansas, Mississippi and East Texas delivery.

## FUEL OIL

| OKLAHOMA (Group 3)— | Dec. 10 | | Dec. 3 | | Nov. 26 | |
|---|---|---|---|---|---|---|
| Below 18 Fuel Oil, per bbl. | .70 | .75 | .65 | .70 | .65 | .67½ |
| 18-22 Fuel Oil, per bbl. | .75 | .80 | .67½ | .72½ | .67½ | .72½ |
| 20-22 Fuel Oil, per bbl. | .80 | .85 | .70 | .75 | .70 | .75 |
| 22-26 Fuel Oil, per bbl. | .85 | .90 | .75 | .85 | .75 | .80 |
| 24-26 Fuel Oil, per bbl. | .95 | 1.00 | .85 | .95 | .80 | .90 |
| 26-30 Fuel Oil, per bbl. | 1.00 | 1.05 | .90 | 1.00 | .90 | 1.00 |
| 28-30 Fuel Oil, per bbl. (industrial) | 1.15 | 1.25 | 1.15 | .120 | 1.15 | 1.20 |
| 32-36 Gas Oil (industrial) | .02⅞ | .03 | .02¾ | .02⅞ | .02¾ | .03 |
| 32-36 Gas Oil (straw color) | .03⅛ | .03¼ | .03 | .03⅛ | .03 | .03⅛ |
| 36-38 Distillate | .03⅝ | .03¾ | .03⅝ | .03⅞ | .03⅝ | .03⅞ |
| 38-40 Straw Distillate | .03⅞ | .04¼ | .03⅞ | .04 | .03¾ | .04¼ |
| NORTH TEXAS— | | | | | | |
| Below 20 Fuel Oil, per bbl. | .60 | .65 | .60 | .65 | .60 | .65 |
| 24-26 Fuel Oil, per bbl. | .85 | .95 | .85 | .90 | .75 | .80 |
| 32-36 Gas Oil (straw) | .02⅞ | .03 | .02¾ | .03 | .02¾ | .03 |
| 38-40 Straw Distillate | .03¾ | .04 | .03¾ | .04 | .03¾ | .04 |
| *NORTH LOUISIANA— | | | | | | |
| 18-20 Fuel Oil, per bbl. | .80 | .85 | .80 | .90 | .80 | .90 |
| 30-32 Gas Oil | .03¼ | .03½ | .03¼ | .03½ | .03½ | .03¾ |
| *ARKANSAS— | | | | | | |
| 33-36 Distillate | .03⅝ | .04 | .03⅝ | .04 | .03⅝ | .04 |
| 30-32 Gas Oil | .03¼ | .03½ | .03¼ | .03½ | .03¼ | .03¾ |
| 16-22 Refinery Fuel Oil, per bbl. | .80 | .85 | .80 | .90 | .80 | .90 |
| GULF COAST (South Texas)— | | | | | | |
| Gas Oil | .04 | .04¼ | .04 | .04¼ | .04 | .04¼ |
| Bunker C Fuel (cargo lots), per bbl. | .75 | | .75 | | .75 | |
| Bunker C Fuel (small lots) | 1.00 | 1.05 | 1.00 | 1.05 | 1.00 | 1.05 |
| PENNSYLVANIA— | | | | | | |
| 30-34 Fuel Oil | .04⅝ | .04⅞ | .04⅝ | .04⅞ | .04½ | .04¾ |
| 36-40 Fuel Oil | .04¾ | .05 | .04¾ | .05 | .04⅝ | .04⅞ |
| CALIFORNIA— | | | | | | |
| 33-36 Distillate | .03½ | .04 | .03½ | .04 | .03½ | .04 |
| 26-32 Distillate | .02 | .02½ | .02 | .02½ | .02 | .02½ |
| 15-20 Fuel Oil, Bunker (at tide water) | .65 | .85 | .65 | .85 | .65 | .85 |
| 15-20 Fuel Oil (cargo lots), per bbl. | .70 | .85 | .70 | .85 | .70 | .85 |
| 27 plus Diesel, per bbl. | .90 | 1.05 | .90 | 1.05 | .90 | 1.05 |
| CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| 22-26 Fuel Oil, per bbl. | .80 | .85 | .77½ | .82½ | .77½ | .82½ |
| 18-22 Fuel Oil, per bbl. | .70 | .75 | .67½ | .72½ | .67½ | .72½ |
| 28-30 Fuel Oil, per bbl. | 1.15 | 1.20 | 1.15 | 1.20 | 1.15 | 1.20 |
| 32-36 Gas Oil (zero) | .03½ | .03⅝ | .03⅛ | .03⅜ | .03⅛ | .03¼ |
| 32-36 Gas Oil (industrial) | .02¾ | .03 | .03 | .03⅛ | .02⅞ | .03 |
| 36-38 Distillate | .03⅝ | .03¾ | .03⅝ | .03¾ | .03½ | .03⅝ |
| 38-40 Straw Distillate | .03¾ | .04 | .03¾ | .04 | .03⅝ | .03⅞ |

*Louisiana, Arkansas Mississippi and East Texas delivery.

## LUBRICATING OIL AND WAX

| OKLAHOMA (Group 3)— | Dec. 10 | | Dec. 3 | | Nov. 26 | |
|---|---|---|---|---|---|---|
| 100 vis., 2 color, 20-25 cold test | .06¾ | .07 | .06¾ | .07 | .06¾ | .07 |
| 100 vis., 3 color, 20-25 cold test | .05¾ | .06 | .05¾ | .06 | .05¾ | .06 |
| 150 vis., 3 color, 20-25 cold test | .08¼ | .08½ | .08¼ | .08½ | .07¾ | .08 |
| 150 vis., 4 color, 20-25 cold test | .07¾ | .08 | .07¾ | .08 | .07½ | .07¾ |
| 180 vis., 3 color, 23-28 cold test | .09¾ | .10 | .09¾ | .10 | .09¼ | .09½ |
| 180 vis., 4 color, 23-28 cold test | .09¼ | .09½ | .09¼ | .09½ | .08¾ | .09 |
| 180 vis., 5 color, 23-28 cold test | .09 | .09¼ | .09 | .09¼ | .08½ | .08¾ |
| 200 vis., 3 color, 23-28 cold test | .10¾ | .11 | .10¾ | .11 | .09¾ | .10 |
| 200 vis., 4 color, 23-28 cold test | .10¼ | .10½ | .10¼ | .10½ | .09¼ | .09½ |
| 200 vis., 5 color, 23-28 cold test | .09¾ | .10 | .09¾ | .10 | .08¾ | .09 |
| 240 vis., 3 color, 25-30 cold test | .14¼ | .14½ | .14¼ | .14½ | .13¼ | .13½ |
| 240 vis., 4 color, 25-30 cold test | .13¼ | .13½ | .13¼ | .13½ | .12¼ | .12½ |
| 240 vis., 5 color, 25-30 cold test | .12¾ | .13 | .12¾ | .13 | .11¾ | .12 |
| 280 vis., 3 color, 25-30 cold test | .16¾ | .17 | .16¾ | .17 | .15¾ | .16 |
| 280 vis., 4 color, 25-30 cold test | .15¾ | .16 | .15¾ | .16 | .14¾ | .15 |
| 280 vis., 5 color, 25-30 cold test | .14¾ | .15 | .14¾ | .15 | .13¾ | .14 |
| Cylinder Stocks: | | | | | | |
| 600, steam refined, light green | .10 | .12 | .10 | .12 | .10 | .12 |
| 600, steam refined, dark green | .09 | .11 | .09 | .11 | .09 | .11 |
| 190-200 vis., D color Bright Stock | .41 | .42 | .41 | .42 | .41 | .42 |
| 150-160 vis., D color Bright Stock | .37 | | .37 | | .37 | |
| 150-160 vis., E color Bright Stock | .32 | .35 | .32 | .35 | .32 | .35 |
| Waxes: | | | | | | |
| 124-126 White Crude Scale Wax | .03 | .03⅛ | .03 | .03⅛ | .03 | .03⅛ |
| PENNSYLVANIA— | | | | | | |
| 34 Neutral | .07½ | .07¾ | .07½ | .07¾ | .07½ | .07¾ |
| 34 Sundebloom | .07½ | .07¾ | .07½ | .07¾ | .07½ | .07¾ |
| 36 Miners' Neutral | .07¼ | .07½ | .07¼ | .07½ | .07¼ | .07½ |
| 150, 3 color | .15½ | .16 | .15½ | .16 | .15½ | .16 |
| 180, 3 color | .21½ | .22 | .21½ | .22 | .21½ | .22 |
| 200, 3 color | .23½ | .24 | .23½ | .24 | .24½ | .25 |
| 220, 3 color | .28½ | .29 | .28½ | .29 | .28½ | .29 |
| 600, steam refined | .26 | .26½ | .26 | .26½ | .26½ | .27 |
| 635, steam refined | .30 | .30½ | .30 | .30½ | .29½ | .30 |
| 650, steam refined | .31 | .31½ | .31 | .31½ | .31 | .32 |
| 600, Pennsylvania Flash | .32 | .32½ | .32 | .32½ | .32 | .33 |
| 630, Pennsylvania Flash | .35 | .36 | .35 | .36 | .36 | .36½ |
| 600, E filtered | .32½ | .33 | .32½ | .33 | .32½ | .33 |
| 600, D filtered | .36½ | .37 | .36½ | .37 | .36½ | .37 |
| Pennsylvania Bright Stock | .45 | .46 | .45 | .46 | .48 | .49 |
| *122-124 White Crude Scale Wax | .03 | .03⅛ | .03 | .03⅛ | .03¼ | .03½ |
| *124-126 White Crude Scale Wax | .03⅛ | .03¼ | .03⅛ | .03¼ | .03¼ | .03½ |

*At New York.

| GULF COAST (South Texas)— | | | | | | |
|---|---|---|---|---|---|---|
| No. 2 color, 100 vis., pale oil | .06 | .06½ | .06 | .06½ | .06 | .06½ |
| No. 3 color, 200 vis., pale oil | .08½ | .09 | .08½ | .09 | .08½ | .09 |
| No. 3 color, 300 vis., pale oil | .09¾ | .10 | .09¾ | .10 | .09¾ | .10 |
| No. 3½ color, 500 vis., pale oil | .11 | .11½ | .11 | .11½ | .11 | .11½ |
| No. 4 color, 750 vis., pale oil | .12 | .13 | .12 | .13 | .12 | .13 |
| No. 5 to 6 color, 200 vis., red oil | .07 | .08 | .07 | .08 | .07 | .08 |
| No. 5 to 6 color, 300 vis., red oil | .08½ | .09 | .08½ | .09 | .08½ | .09 |
| No. 5 to 6 color, 500 vis., red oil | .09 | .10 | .09 | .10 | .09 | .10 |
| No. 5 to 6 color, 750 vis., red oil | .11½ | .12½ | .11½ | .12½ | .11½ | .12½ |
| No. 2½ color, 200 vis., pale filtered | .11 | .12 | .11 | .12 | .11 | .12 |

# REFINERY AND CRUDE PRICES

**Quotations on refined products are for interstate or export movement unless otherwise noted.**

| | | | | | | |
|---|---|---|---|---|---|---|
| No. 2½ color, 300 vis., pale filtered | .12 | .13 | .12 | .13 | .12 | .13 |
| No. 2½ color, 500 vis., pale filtered | .14½ | .15 | .14½ | .15 | .14½ | .15 |
| No. 2½-3 color, 750 vis., pale filtered | .17 | .19 | .17 | .19 | .17 | .19 |
| **CALIFORNIA—** | | | | | | |
| 130 vis., 2½-3 color | .10¼ | .10½ | .10¼ | .10½ | .10¼ | .10½ |
| 200 vis., 2½-3 color | .11½ | .11¾ | .11½ | .11¾ | .11½ | .11¾ |
| 300 vis., 3-3½ color | .13 | .13½ | .13 | .13½ | .13 | .13½ |
| 350 vis., 3½-4 color | .13½ | .13¾ | .13½ | .13¾ | .13½ | .13¾ |
| 400 vis., 3½-4 color | .15 | .15½ | .15 | .15½ | .15 | .15½ |
| **Red Neutral:** | | | | | | |
| 200 vis., 4½-5 color | .11 | .11¼ | .11 | .11¼ | .11 | .11¼ |
| 300 vis., 5-6 color | .12 | .12¼ | .12 | .12¼ | .12 | .12¼ |
| 400 vis., 5-6 color | .13¼ | .14 | .13¼ | .14 | .13¼ | .14 |
| 500 vis., 4½-5 color | .14¼ | .15½ | .14¼ | .15½ | .14¼ | .15½ |
| 500 vis., 5-6½ color | .15 | .15¼ | .15 | .15¼ | .15 | .15 |
| 600 vis., 6½ plus color | .16 | .16¼ | .16 | .16¼ | .16 | .16¼ |

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

## NEW YORK (BAYONNE) REFINERY PRICES

| | Dec. 10 | | Dec. 3 | | Nov. 26 | |
|---|---|---|---|---|---|---|
| Gasoline, U, S. Motor, 58-60, 437 | .08¾ | .09 | .08¾ | .09 | .08¾ | .09 |
| Kerosene, water white, 41-43 | .07¾ | | .07¾ | | .07¾ | |
| *Fuel Oil, Bunker "C," 14-16, per bbl. | 1.05 | | 1.05 | | 1.05 | |
| †Fuel Oil, Diesel, 28-30, per bbl. | 2.00 | | 2.00 | | 2.00 | |
| Gas Oil, 32-36 gravity | .05¼ | | .05¼ | | .05¼ | |
| 25 pale Paraffin Oil | .10½ | | .10½ | | .10½ | |
| 28 pale Paraffin Oil | .07¼ | | .07¼ | | .07¼ | |
| 285 red Paraffin Oil | .12½ | | .12½ | | .12½ | |
| 250 red Paraffin Oil | .11½ | | .11½ | | .11½ | |
| 225 red Paraffin Oil | .10 | | .10 | | .10 | |
| 200 red Paraffin Oil | .09¼ | | .09¼ | | .09¼ | |
| **Refined Wax:** | | | | | | |
| 120-122 a.m.p., per lb. | .038 | | .038 | | .04 | |
| 125-127 a.m.p., per lb. | .04⅛ | .04¼ | .04⅛ | .04¼ | .04⅛ | |
| 130-132 a.m.p., per lb. | .04½ | | .04½ | | .04⅞ | |
| 133-135 a.m.p., per lb | .05¾ | | .05¾ | | .05⅞ | |
| 135-137 a.m.p., per lb. | .06⅛ | | .06⅛ | | .06¼ | |
| **Petrolatum in barrels, carload lots, per pound:** | | | | | | |
| Dark Green | .01⅞ | | .01⅞ | | .01⅞ | |
| Amber | .03½ | | .03½ | | .03½ | |
| Extra Amber | .03⅝ | | .03⅝ | | .03⅝ | |
| Cream | .06⅜ | | .06⅜ | | .06⅜ | |
| Lily White | .07⅜ | | .07⅜ | | .07⅜ | |
| Snow White | .08⅜ | | .08⅜ | | .08⅜ | |

*Lighterage 5.0 cents a barrel extra. †Lighterage 6.5 cents a barrel extra.

## NEW YORK (BAYONNE) EXPORT PRICES

| | Dec. 10 | Dec. 3 | Nov. 26 |
|---|---|---|---|
| Kerosene, prime white | .07¾ | .07¾ | .07¾ |
| Kerosene, water white | .09 | .09 | .09 |
| 600, steam refined cylinder stocks, in bbls. | .32½ | .32½ | .33 |
| 635, steam refined | .34½ | .34½ | .35 |
| 650, steam refined | .38½ | .38½ | .39 |
| 600, Pennsylvania Flash | .43 | .43 | .43 |
| 630, Pennsylvania Flash | .47 | .47 | .47 |
| 600, Warren E | .40 | .40 | .40 |
| 600, Oil City E | .39 | .39 | .39 |
| Light 140-150 Bright Stocks | .55 .56 | .57 .58 | .57 .58 |
| Dark 140-150 Bright Stocks | .53 .54 | .56 .57 | .56 .57 |

## LOS ANGELES EXPORT PRICES

| | Dec. 10 | Dec. 3 | Nov. 26 |
|---|---|---|---|
| Kerosene, water white | .04½ .05 | .04½ .05 | .04½ .05 |
| U. S. Motor Gasoline, 53-55, 437 e.p. | .06¼ .06¾ | .06¼ .06¾ | .06¼ .06¾ |

## CRUDE OIL PRICES

### OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Oklahoma City—Same as other Mid-Continent price schedule except Empire Pipe Line Co. posts all oil 40 gravity and above at $1.65 on November 24.
Corsicana heavy (January 11)* .....$ .80
Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

### TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

### WEST TEXAS

Iatan*.....Same as North Texas
Crane-Upton-Crockett. Pecos, Winkler and Mitchell.....See gravi.y table, column 3
Howard and Glasscock.....See gravity table, column 11
Chalk† .....$ .65

*Includes Westbrook Field.
†Posted by Humble Oil & Refining Co.

### ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (May 20, 1929) .....$ .85
Smackover, 24 gravity and above (May 20, 1929) ..... 1.00
Cotton Valley, below 36 gravity (May 22) ..... .85
Bellevue (May 29, 1929) ..... 1.30
Urania (May 21, 1929) ..... 1.01
East El Dorado (May 22, 1929) ..... .85
Other fields.....See gravity table

Cotton Valley crude about 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

### GULF COAST

Grade A (May 20)*.....$1.30
Grade B .....See gravity table
Jennings, La. (March 14)† ..... 1.05
Saratoga, Batson, Dayton (March 14, 1927)‡ ..... 1.20
Refugio¶ ..... .70
Markham (March 14)‖ ..... 1.00
High Island (December 14)¶ ..... 1.00
*Humble Oil & Refining Co., The Texas Company, Gulf Pipe Line Co., and Sun Pipe Line Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. ‖The Texas Company. ¶Posted by Gulf Pipe Line Co.

### ROCKY MOUNTAIN STATES

**Ohio Oil Co.-Midwest Refining Co.**
(Effective May 21, 1929)

Rock Creek, Wyo. .....$1.40
Salt Creek.....See gravity table
Big Muddy .....$1.43
Grass Creek, heavy (July 27, 1928) ... .90
Grass Creek, light ..... 1.65
Mule Creek ..... 1.20
Elk Basin ..... 1.65
Lance Creek ..... 1.68
Poison Spider (March 14, 1927)..... 1.00
Notches (March 14, 1927)..... .65
Rex Lake (February 22) ..... 1.10
Osage ..... 1.65
Lost Soldier (contract, May 22) ..... 1.05
Hamilton Dome (March 14, 1927)..... .85
Pedro ..... 1.25
Greybull ..... 1.65
Four Bear ..... .85
Cat Creek (Montana) (July 27, 1928).. 1.48
Sunburst (Montana) (May 23, 1929) ... 1.75
Torchlight ..... 1.65
Hogback (New Mexico) ..... 1.70

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

(Continued on Page 136)

## CRUDE OIL GRAVITY TABLE

| Gravity— | Okla., Kans., N. C. Texas 1 | No. La. and Arkansas 2 | Crane, Upton, Crockett, Winkler, Pecos, Mitchell, Texas crudes, and Lea, N. Mex. 3 | Stephens, Ark. 4 | Wheeler (Texas Panhandle) 5 | Gray County (Texas Panhandle) 6 | Carson and Hutchinson (Texas Panhandle) 7 | Salt Creek, Wyo. 8 | Grade B and Light Crude (G. Coas.) 9 | Somerset (South Central Texas) 10 | Howard and Glasscock, W. Tex. 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 and above | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Below 24 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Below 25 | .85 | .... | .70 | .... | .... | .... | .... | .... | 1.15 | .... | .70 |
| 25 to 25.9 | .90 | .... | .74 | .... | .... | .... | .... | .... | 1.18 | .... | .74 |
| 26 to 26.9 | .95 | .... | .78 | .... | .... | .... | .... | .... | 1.21 | .... | .78 |
| 27 to 27.9 | 1.00 | .... | .82 | .... | .... | .... | .... | .... | 1.24 | .... | .82 |
| Below 28 | .... | 1.00 | .... | .90 | .90 | .90 | .90 | .... | .... | .... | .... |
| 28 to 28.9 | 1.05 | 1.05 | .86 | .94 | .90 | .90 | .90 | .... | 1.27 | .... | .84 |
| 29 to 29.9 | 1.10 | 1.10 | .90 | .98 | .90 | .95 | .90 | 1.10 | 1.30 | .... | .86 |
| 30 to 30.9 | 1.15 | 1.15 | .94 | 1.02 | .95 | 1.00 | .90 | 1.15 | 1.33 | .... | .88 |
| 31 to 31.9 | 1.20 | 1.20 | .98 | 1.06 | 1.00 | 1.05 | .90 | 1.20 | 1.36 | .... | .90 |
| 32 to 32.9 | 1.25 | 1.25 | 1.02 | 1.10 | 1.05 | 1.10 | .95 | 1.25 | 1.39 | 1.05 | .92 |
| 33 to 33.9 | 1.30 | 1.30 | 1.06 | .... | 1.10 | 1.15 | 1.00 | 1.30 | 1.42 | 1.07 | .94 |
| 34 to 34.9 | 1.35 | 1.35 | 1.10 | .... | 1.15 | 1.20 | 1.05 | 1.35 | 1.45 | 1.09 | .96 |
| 35 to 35.9 | 1.40 | 1.40 | 1.14 | .... | 1.20 | 1.25 | 1.10 | 1.40 | 1.48 | 1.11 | .98 |
| 36 to 36.9 | 1.45 | 1.45 | 1.18 | .... | 1.25 | 1.30 | 1.15 | 1.45 | .... | 1.13 | 1.00 |
| 37 to 37.9 | 1.50 | 1.50 | .... | .... | 1.30 | 1.35 | 1.20 | 1.50 | .... | 1.15 | .... |
| 38 to 38.9 | 1.55 | 1.55 | .... | .... | 1.35 | 1.40 | 1.25 | .... | .... | 1.17 | .... |
| 39 to 39.9 | 1.60 | 1.60 | .... | .... | 1.40 | 1.45 | 1.30 | .... | .... | .... | .... |
| 40 to 40.9 | 1.65 | 1.65 | .... | .... | 1.45 | 1.50 | 1.35 | .... | .... | .... | .... |
| 41 to 41.9 | 1.70 | 1.70 | .... | .... | 1.50 | 1.55 | 1.40 | .... | .... | .... | .... |
| 42 to 42.9 | 1.75 | 1.75 | .... | .... | 1.55 | 1.60 | 1.45 | .... | .... | .... | .... |
| 43 to 43.9 | 1.80 | 1.80 | .... | .... | 1.60 | 1.65 | 1.50 | .... | .... | .... | .... |
| 44 and above | 1.85 | 1.85 | .... | .... | 1.65 | 1.70 | 1.55 | .... | .... | .... | .... |

Column 1, Note—Magnolia Petroleum Co. posted schedule May 20, 1929, making price below 26 gravity 70 cents per barrel, 26-26.9 gravity 75 cents, 27-27.9 gravity 85 cents, 28-28.9 gravity 90 cents, 29-29.9 gravity 95 cents, 30-30.9 gravity $1.05, and 31-31.9 gravity $1.15, with balance of the price schedule as shown above. Top price of Empire Pipe Line Co., effective November 14 for Oklahoma City crude oil, is for 40° and above.

Oklahoma—Carter Oil Co., Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, May 20.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona and Moran, Prairie Oil & Gas Co., Sinclair Oil Refining Co., Humble Oil & Refining Co., The Texas Company and Gulf Refining Co., May 20.

Kansas—Prairie, Sinclair, The Texas Company and Carter, May 20.

Column 2—Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, Cotton Valley above 36 gravity, DeSoto, Haynesville, Homer and El Dorado only) May 23. Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., Magnolia Petroleum Co., schedule applies to Pine Island, Haynesville, Bull Bayou, Louisiana and El Dorado, Ark., light crude.

Column 3—Humble Oil & Refining Co. and Magnolia Petroleum Co., May 20.

Column 4—Atlantic Oil Producing Co., Prairie Oil & Gas Co., Louisiana Oil Refining Corp., May 21, 1929.

Columns 5, 6 and 7—Humble Oil & Refining Co., Magnolia Petroleum Co., May 20, 1929.

Column 8—Midwest Refining Co., May 20, 1929. All crude over 37 gravity $1.50 per barrel.

Column 9—Humble Oil & Refining Co., May 20, 1929 (schedule ends 35 and above).

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

Column 11—Humble Oil & Refining Co., November 26.

## CALIFORNIA CRUDE OIL PRICES

**Standard Oil Co.-Union Oil Co. (Effective October 21, 1929)**

| Gravity— | Salt Lake, Newport, Summerland, Lawndale, Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Alamitos Bay, Signal Hill (Nov. 8) Athens, Inglewood, Rosecrans-Dominguez, Watsonville 1 | Whittier, La Habra, Coyote Hills 2 | Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills 3 | Montebello 4 | Santa Fe Springs (Nov. 6) 5 | Santa Maria, Coalinga 6 | Wheeler Ridge, Fruitvale 7 | Orcutt, Ventura, Rincon 8 | Ventura Ave.* Potrero† 9 | Elwood Terrace 10 | Seal Beach (Nov. 4) 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 to 14.9 | .70 | .70 | .50 | .70 | .... | .50 | .50 | .65 | .40 | .... | .70 |
| 15 to 15.9 | .70 | .70 | .50 | .70 | .... | .50 | .50 | .65 | .40 | .... | .70 |
| 16 to 16.9 | .70 | .70 | .50 | .70 | .... | .50 | .50 | .65 | .40 | .... | .70 |
| 17 to 17.9 | .70 | .70 | .50 | .70 | .... | .50 | .50 | .65 | .40 | .... | .70 |
| 18 to 18.9 | .75 | .75 | .56 | .70 | .... | .56 | .56 | .70 | .40 | .... | .75 |
| 19 to 19.9 | .80 | .80 | .62 | .75 | .... | .62 | .62 | .70 | .40 | .... | .80 |
| 20 to 20.9 | .85 | .84 | .68 | .80 | .... | .68 | .68 | .70 | .40 | .... | .85 |
| 21 to 21.9 | .89 | .88 | .74 | .85 | .89 | .74 | .74 | .86 | .40 | .... | .89 |
| 22 to 22.9 | .93 | .91 | .80 | .90 | .93 | .80 | .80 | .87 | .40 | .... | .93 |
| 23 to 23.9 | .97 | .94 | .85 | .95 | .95 | .85 | .85 | .90 | .40 | .... | .97 |
| 24 to 24.9 | 1.01 | .97 | .90 | .98 | .98 | .88 | .88 | .94 | .40 | .... | 1.01 |
| 25 to 25.9 | 1.05 | 1.00 | .95 | 1.01 | 1.01 | .91 | .91 | .98 | .60 | .... | 1.05 |
| 26 to 26.9 | 1.09 | 1.04 | 1.00 | 1.04 | 1.04 | .94 | .94 | 1.02 | .60 | .... | 1.09 |
| 27 to 27.9 | 1.13 | 1.08 | 1.05 | 1.07 | 1.07 | .98 | .97 | .... | .60 | .... | 1.13 |
| 28 to 28.9 | 1.17 | 1.12 | 1.10 | 1.10 | 1.10 | 1.02 | .... | .... | .60 | .... | 1.17 |
| 29 to 29.9 | 1.21 | 1.16 | 1.15 | 1.13 | 1.15 | 1.06 | .... | .... | .60 | .... | 1.21 |
| 30 to 30.9 | 1.25 | 1.20 | 1.32 | 1.16 | 1.20 | 1.10 | .... | .... | .60 | .... | 1.25 |
| 31 to 31.9 | 1.30 | .... | 1.28 | .... | 1.25 | 1.14 | .... | .... | .60 | .... | 1.30 |
| 32 to 32.9 | 1.35 | .... | 1.34 | .... | 1.30 | 1.18 | .... | .... | .60 | .... | 1.35 |
| 33 to 33.9 | 1.41 | .... | 1.40 | .... | 1.35 | 1.22 | .... | .... | .60 | .... | .... |
| 34 to 34.9 | 1.47 | .... | 1.46 | .... | 1.40 | 1.26 | .... | .... | .60 | 1.16 | .... |
| 35 to 35.9 | 1.53 | .... | .... | .... | 1.45 | 1.30 | .... | .... | .60 | 1.22 | .... |
| 36 to 36.9 | 1.59 | .... | .... | .... | 1.50 | .... | .... | .... | .60 | 1.28 | .... |
| 37 to 37.9 | 1.65 | .... | .... | .... | 1.55 | .... | .... | .... | .60 | 1.34 | .... |
| 38 to 38.9 | 1.71 | .... | .... | .... | 1.60 | .... | .... | .... | .60 | 1.40 | .... |
| 39 to 39.9 | 1.77 | .... | .... | .... | 1.65 | .... | .... | .... | .60 | 1.46 | .... |
| 40 to 40.9 | 1.83 | .... | .... | .... | .... | .... | .... | .... | .60 | 1.52 | .... |
| 41 to 41.9 | 1.89 | .... | .... | .... | .... | .... | .... | .... | .60 | 1.58 | .... |
| 42 to 42.9 | 1.95 | .... | .... | .... | .... | .... | .... | .... | .60 | 1.64 | .... |

*October 22. †Sunset Pacific Oil Co., October 26.

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity 45 cents, 14 gravity and above 50 cents, effective October 2, 1929. On December 1, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents, 14 gravity and above 50 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity; Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

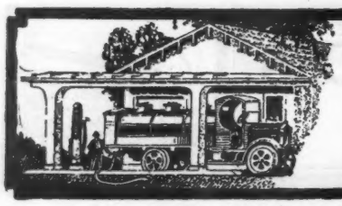
Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 13.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9—Posted by Union Oil Co. only.

Kettleman Hills, 55 gravity and above, $1.65 (posted by Standard Oil Co. of California).



# TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Dec. 10

## ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

### STANDARD OIL CO (INDIANA)

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Chicago† | 17.0 | 18.0 | 3.0 | 13.0 |
| Decatur, Ill. | 19.2 | 20.2 | 3.0 | 13.1 |
| E. St. Louis | 15.4 | 15.4 | 3.0 | 12.3 |
| Joliet | 19.4 | 20.4 | 3.0 | 13.3 |
| Peoria | 19.2 | 20.2 | 3.0 | 13.1 |
| Quincy | 19.2 | 20.2 | 3.0 | 12.9 |
| Davenport, Ia. | 19.5 | 20.5 | 3.0 | 13.3 |
| Des Moines | 19.5 | 20.5 | 3.0 | 13.3 |
| Keokuk | 19.5 | 20.5 | 3.0 | 13.3 |
| Sioux City | 19.1 | 20.1 | 3.0 | 12.9 |
| Duluth, Minn. | 20.5 | 21.5 | 3.0 | 13.9 |
| Mankato | 20.1 | 21.1 | 3.0 | 13.7 |
| Minneapolis | 20.2 | 21.2 | 3.0 | 13.9 |
| LaCrosse, Wis. | 19.2 | 20.2 | 2.0 | 14.0 |
| Milwaukee | 18.1 | 19.1 | 2.0 | 12.9 |
| Madison | 18.3 | 19.3 | 2.0 | 13.1 |
| Detroit, Mich. | 19.8 | 20.8 | 3.0 | 14.7 |
| Grand Rapids | 19.7 | 20.7 | 3.0 | 14.6 |
| Saginaw | 19.9 | 20.9 | 3.0 | 14.8 |
| Evansville, Ind. | 20.0 | 21.0 | 4.0 | 14.0 |
| Fort Wayne | 20.4 | 21.4 | 4.0 | 14.4 |
| Indianapolis | 20.2 | 21.2 | 4.0 | 14.2 |
| South Bend | 20.4 | 21.4 | 4.0 | 14.4 |
| Fargo, N. D. | 21.9 | 22.9 | 3.0 | 15.9 |
| Huron, S. D. | 21.7 | 22.3 | 4.0 | 14.7 |
| Sioux Falls | 20.1 | 21.1 | 4.0 | 14.4 |
| K. C., Mo.* | 18.9 | 19.9 | 3.0 | 11.6 |
| Springfield* | 18.8 | 19.8 | 3.0 | 12.5 |
| St. Louis* | 17.9 | 18.9 | 2.5 | 12.3 |
| St. Joseph | 18.5 | 19.5 | 2.0 | 12.2 |
| Wichita, Kans. | 17.8 | 18.8 | 3.0 | 11.8 |
| Bartlesville, Ok. | 18.5 | 19.5 | 4.0 | 11.5 |

*State tax 2 cents; remainder city tax.

†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

### NAPHTHA

| | Tank wagon | Tank car |
|---|---|---|
| Oleum spirits | 15.7 | 12.9 |
| V. M. & P. Naphtha | 17.2 | 13.9 |
| Cleaner's naphtha | 17.0 | 14.9 |
| Stanisol | 17.0 | 15.4 |

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

### STANOLIND FURNACE OIL IN CHICAGO

| | |
|---|---|
| Less than 100 gallons | 9.0 |
| 100 to 349 gallons | 8.0 |
| 350 gallons or more | 7.5 |

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

### SOUTHWESTERN DISTRICT

**Magnolia Petroleum Co.**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Dallas, Tex. | 17.0 | 21.0 | 4.0 | 12.0 |
| Fort Worth | 17.0 | 20.0 | 4.0 | 12.0 |
| Houston | 13.0 | 17.0 | 4.0 | 11.0 |
| San Antonio | 15.0 | 19.0 | 4.0 | 11.0 |
| El Paso | 16.0 | 20.0 | 4.0 | 16.0 |
| Texarkana | 17.0 | 19.0 | 4.0 | 12.0 |
| Muskogee, Ok.* | 16.0 | 19.0 | 4.0 | 10.0 |
| Okla. City* | 17.0 | 20.0 | 4.0 | 10.0 |
| Tulsa* | 15.0 | 18.0 | 4.0 | 10.0 |
| Ft. Smith, Ark. | 15.0 | 17.0 | 5.0 | 12.0 |
| Little Rock | 19.0 | 21.0 | 5.0 | 13.0 |

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

### ROCKY MOUNTAIN DISTRICT

**Continental Oil Co.**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Denver, Colo. | 18.0 | 21.0 | 4.0 | 15.5 |
| Pueblo | 18.0 | 21.0 | 4.0 | 15.5 |
| Grand Junction | 22.5 | 25.5 | 4.0 | 19.0 |
| Casper, Wyo. | 20.0 | 23.0 | 4.0 | 14.0 |
| Cheyenne | 21.0 | 24.0 | 4.0 | 15.5 |
| Butte, Mont. | 25.5 | 28.5 | 5.0 | 20.0 |
| Helena | 25.5 | 28.5 | 5.0 | 20.0 |
| Salt Lake, Utah | 21.0 | 21.0 | 3.5 | 17.0 |
| Albu'que, N. M. | 20.0 | 23.0 | 5.0 | 17.0 |
| Boise, Idaho | 23.5 | 26.5 | 4.0 | 19.0 |
| Twin Falls | 23.5 | 27.5 | 4.0 | 19.0 |

### PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

**The Atlantic Refining Co.**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Pittsburgh, Pa. | 15.0 | *21.0 | ... | 13.0 |
| Philadelphia | 15.0 | *21.0 | ... | 13.0 |
| Scranton | 15.0 | *21.0 | ... | 13.0 |
| Allentown | 15.0 | *21.0 | ... | 13.0 |
| Altoona | 15.0 | *21.0 | ... | 13.0 |
| Erie | 15.0 | *19.0 | ... | 13.0 |
| Dover, Del. | 18.0 | 20.0 | 3.0 | 13.0 |
| Wilmington | 18.0 | 20.0 | 3.0 | 13.0 |
| Springf'd, Mass. | 18.0 | 20.0 | 2.0 | 15.0 |
| Worcester | 18.0 | 20.0 | 2.0 | 15.0 |
| Boston | 18.0 | 20.0 | 2.0 | 15.0 |
| Providence, R.I. | 18.0 | 20.0 | 2.0 | 13.0 |
| Hartford, Conn. | 18.0 | 20.0 | 2.0 | 14.0 |
| New Haven | 18.0 | 20.0 | 2.0 | 15.0 |

*Includes tax of 4.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

### NEW YORK AND PART OF NEW ENGLAND DISTRICT

**Standard Oil Co. (New York)**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Albany, N. Y. | 18.0 | 20.0 | 2.0 | 15.0 |
| New York* | 16.0 | 18.0 | 2.0 | 15.0 |
| Buffalo | 18.0 | 18.0 | 3.0 | 14.0 |
| Rochester | 18.0 | 20.0 | 2.0 | 14.0 |
| Syracuse | 18.0 | 20.0 | 2.0 | 15.0 |
| Boston, Mass. | 18.0 | 20.0 | 2.0 | 15.0 |
| Augusta, Me. | 20.0 | 22.0 | 4.0 | 15.0 |
| Manch't'r, N. H. | 20.0 | 22.0 | 4.0 | 15.0 |
| Burlington, Vt. | 19.0 | 20.0 | 4.0 | 15.0 |

*Prices in steel barrels.

### SOUTHERN DISTRICT

**Standard Oil Co. (Kentucky)**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Atlanta, Ga. | 16.0 | 20.0 | 4.0 | 16.5 |
| Augusta | 20.0 | 22.0 | 4.0 | 15.5 |
| Macon | 21.0 | 23.0 | 4.0 | 16.5 |
| Savannah | 22.0 | 24.0 | 4.0 | 15.5 |
| Birm'ham, Ala. | 17.0 | 19.0 | 4.0 | 13.0 |
| Mobile | 18.0 | 20.0 | 4.0 | 15.0 |
| Montgomery | 19.0 | 21.0 | 4.0 | 16.5 |
| Clarks'le, Miss. | 18.0 | 20.0 | 5.0 | 12.5 |
| Jackson | 19.0 | 21.0 | 5.0 | 13.0 |
| Natchez | 20.5 | 20.5 | 5.0 | 14.0 |
| Gulfport | 22.5 | 24.5 | 5.0 | 14.0 |
| Vicksburg | 20.5 | 22.5 | 5.0 | 14.0 |
| Jack'ville, Fla. | 22.0 | 24.0 | 6.0 | 14.5 |
| Miami | 23.0 | 25.0 | 6.0 | 15.5 |
| Pensacola | 18.0 | 20.0 | 6.0 | 14.5 |
| Tampa | 22.0 | 24.0 | 5.0 | 14.5 |
| Lexington, Ky. | 20.0 | 22.0 | 5.0 | 15.5 |
| Covington | 20.0 | 21.0 | 5.0 | 15.5 |
| Louisville | 21.0 | 23.0 | 5.0 | 13.0 |
| Ashland | 20.0 | 21.0 | 5.0 | 15.5 |
| Catlettsburg | 20.0 | 21.0 | 5.0 | 15.5 |

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

### PACIFIC COAST TERRITORY

**Standard Oil Co. (California)**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| San Francisco | 20.0 | 24.0 | 3.0 | 15.5 |
| Los Angeles | 19.5 | 23.5 | 3.0 | 15.5 |
| Reno, Nev. | 24.0 | 26.0 | 4.0 | 19.0 |
| Portland, Ore. | 20.5 | 24.5 | 3.0 | 16.5 |
| Seattle, Wash. | 20.5 | 23.5 | 3.0 | 16.5 |
| Tacoma | 20.5 | 23.5 | 3.0 | 16.5 |
| Spokane | 24.5 | 27.5 | 3.0 | 20.5 |
| Phoenix, Ariz. | 18.0 | 22.0 | 4.0 | 20.5 |

### NEBRASKA

**Standard Oil Co. (Nebraska)**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Omaha | 20.25 | 22.25 | 4.0 | 13.25 |
| McCook | 21.75 | 23.75 | 4.0 | 14.75 |
| Norfolk | 20.75 | 22.75 | 4.0 | 13.75 |
| N. Platte | 21.75 | 23.75 | 4.0 | 14.50 |
| Scottsbluff | 21.75 | 23.75 | 4.0 | 14.25 |

### ATLANTIC COAST DISTRICT

**Standard Oil Co. (New Jersey)**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Atlantic City | 16.0 | 18.0 | 2.0 | 12.0 |
| Newark, N. J. | 17.0 | 19.0 | 2.0 | 13.0 |
| Annapolis, Md. | 19.0 | 21.0 | 4.0 | 13.0 |
| Baltimore | 19.0 | 21.0 | 4.0 | 12.0 |
| Cumberland | 20.0 | 22.0 | 4.0 | 13.0 |
| Washington | 17.0 | 19.0 | 2.0 | 12.0 |
| Danville, Va. | 21.0 | 23.0 | 5.0 | 12.0 |
| Norfolk | 20.0 | 22.0 | 5.0 | 12.0 |
| Petersburg | 21.0 | 23.0 | 5.0 | 13.0 |
| Roanoke | 21.0 | 23.0 | 5.0 | 13.0 |
| Richmond | 20.0 | 22.0 | 5.0 | 13.0 |
| Charles'n, W.Va. | 19.0 | 21.0 | 4.0 | 13.0 |
| Keyser | 20.0 | 22.0 | 4.0 | 13.0 |
| Parkersburg | 19.0 | 21.0 | 4.0 | 12.0 |
| Wheeling | 20.0 | 22.0 | 4.0 | 13.0 |
| Charlotte, N. C. | 19.0 | 21.0 | 5.0 | 13.0 |
| Hickory | 21.0 | 23.0 | 5.0 | 13.0 |
| Mt. Airy | 21.0 | 23.0 | 5.0 | 13.0 |
| Salisbury | 19.0 | 21.0 | 5.0 | 13.0 |
| Charleston, S.C. | 21.0 | 23.0 | 6.0 | 13.0 |
| Columbia | 22.0 | 24.0 | 6.0 | 13.0 |

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

### OHIO

**Standard Oil Co. (Ohio)**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Ohio points* | 18.0 | 19.0 | 4.0 | †12.0 |

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 14 cents.

### CENTRAL SOUTH DISTRICT

**Standard Oil Co. (Louisiana)**

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| N. Orleans, La.* | 15.0 | 15.0 | 5.0 | 13.0 |
| Baton Rouge | 20.0 | 20.9 | 4.0 | 14.5 |
| Alexandria | 19.0 | 21.0 | 5.0 | 16.0 |
| Lafayette† | 20.0 | 22.0 | 5.0 | 14.0 |
| Lake Charles† | 20.5 | 22.5 | 5.0 | 16.0 |
| Shreveport | 19.5 | 21.5 | 4.0 | 15.0 |
| Knoxv'le, Tenn. | 20.0 | 22.0 | 5.0 | 16.0 |
| Memphis | 20.0 | 22.0 | 5.0 | 12.5 |
| Chattanooga | 20.0 | 22.0 | 5.0 | 14.0 |
| Nashville | 19.0 | 19.0 | 5.0 | 16.0 |
| Bristol | 21.0 | 22.0 | 5.0 | 14.0 |
| Lt. Rock, Ark. | 19.0 | 21.0 | 5.0 | 13.0 |

*Tax of 5 cents includes city tax of 1 cent. Louisiana Kerosene prices include 1-cent state tax and 1-cent parish tax.

†Includes 1-cent parish tax.

### TANK WAGON CHANGES

November 21—Magnolia Petroleum Co. reduced kerosene tank wagon price 1 cent at Dallas, Tex.

November 22—Standard Oil Co. of New Jersey reduced gasoline tank wagon and service station prices 1 cent at Annapolis, Md.

November 25—Standard Oil Co. of New Jersey reduced kerosene tank wagon price 1 cent at Norfolk, Va.

November 28—Standard Oil Co. of Kentucky reduced gasoline tank wagon and service station prices 2 cents at Augusta, Ga.

December 1—Standard Oil Co. of Kentucky reduced gasoline service station price 2 cents at Jackson, Miss.

December 2—Standard Oil Co. of Kentucky reduced gasoline tank wagon price 2 cents at Jackson, Miss.

December 3—Standard Oil Co. of Kentucky advanced gasoline tank wagon and service station prices 2 cents at Ashland, Ky.

December 3—Standard Oil Co. of Kentucky advanced gasoline tank wagon and service station prices 2 cents at Cattellsburg, Ky.

December 3—Continental Oil Co. advanced gasoline service station price 1 cent at Albuquerque, N. M.

December 8—Standard Oil Co. of Ohio reduced gasoline tank wagon and service station price 1 cent and kerosene tank wagon 1 cent in Ohio.

December 3—Magnolia Petroleum Co. reduced kerosene tank wagon price 3 cents at Muskogee, Okla.

### CRUDE OIL PRICE CHANGES

December 6—Joseph Seep Purchasing Agency reduced both grades of Corning, Ohio, crudes 10 cents per barrel.

December 6—Pure Oil Co. reduced Midland, Mich., crude oil from $1.70 to $1.50 per barrel.

### DEEP TEST IN TENNESSEE

According to information received by Walter F. Pond, state geologist, location for a deep oil test has been made in Wayne County, Tennessee, on a large tract of land owned by the Wayne County Land Co., a few hundred feet off the Lawrenceburg-Waynesboro pike, and about 8 miles east of the latter place. The well will start in the lower part of the Fort Payne chert about 100 feet above the Chattanooga black shale. The location is largely the result of work done by the Tennessee State Geological Survey in co-operation with the United States Geological Survey in 1921. The Westenn Oil & Gas Co. has been formed as operating company, Vice President L. B. Cheatham making headquarters at Lawrenceburg.

## CRUDE OIL PRICES

(Continued from Page 135)

### SOUTH CENTRAL AND SOUTHWESTERN TEXAS

| | |
|---|---|
| Luling (May 2)* | $ .90 |
| Mirando (May 20, 1929)†† | .90 |
| Salt Flat (May 20, 1929)§ | 1.25 |
| Rockdale Minerva (April 15) | |
| Below 28 gravity | 1.25 |
| 28-38.9 gravity | 1.27 |
| 39-39.9 gravity | 1.29 |
| 40 and above | 1.31 |
| Thrall‡ | ... |
| Callihan (May 15) | 1.75 |
| Lytton Springs (Lockhart) | See gravity table |
| Somerset | See gravity table |

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
§Humble Oil & Refining Co.

### EASTERN STATES

**Joseph Seep Purchasing Agency**
(Effective October 1, 1929)

| | |
|---|---|
| Penna Grade Oil in New York Transit Lines (New York) | $3.05 |
| Bradford District Oil in National Transit Lines (Pennsylvania) | 3.05 |
| Penna Grade Oil in National Transit Lines (Pennsylvania) | 3.05 |
| Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia) | 3.00 |
| Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania) | 2.90 |
| Penna Grade Oil in Buckeye Pipe Line Lines (Ohio) | 2.70 |
| Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929) | 1.75 |
| Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (May 22, 1929) | 1.70 |
| Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines (May 22, 1929) | 1.80 |
| Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Nov. 12, 1929) | 1.55 |
| Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29) | .60 |
| Wayne district oil in Cumberland Pipe Lines | 1.42 |

### MIDDLE WESTERN STATES

**Ohio Oil Co.**
(Effective May 21, 1929)

| | |
|---|---|
| Lima | $1.80 |
| Wooster | 1.90 |
| Illinois | 1.75 |
| Indiana | 1.57 |
| Princeton | 1.75 |
| Plymouth | 1.28 |
| Waterloo (November 17, 1926) | 1.35 |
| Western Kentucky | 1.68 |
| Dundee, Mich. (Sept. 17, 1929)§ | Same as Mid-Continent gravity scale |
| Upper and Lower Traverse sands, Mich† | Same as Mid-Continent gravity scale |
| Midland, Mich. (December 6, 1929)* | $1.50 |
| Saginaw, Mich., Saginaw Sand (February 10)† | 1.89 |
| Saginaw, Mich., Berea Sand (February 10)† | 1.79 |
| Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 15)‡ | 1.50 |
| Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (Oct. 7, 1929)§ | 1.70 |
| Oil Springs (Canada)¶ | 2.27 |
| Petrolia (Canada)¶ | 2.20 |

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.
‖Posted by Standard of Indiana for boat shipment.

### MEXICAN CRUDE

| | |
|---|---|
| Panuco* | $ .64 |

*Based on November transactions for deliveries during November and December. Price exclusive of taxes.

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# Dividend Payments of Standard Group

## Fourth Quarter New Record as Is Also Total for the Year. Gain Over Third Quarter

NEW YORK, Dec. 9.—Dividend payments in cash by the companies comprising the Standard Oil group amounted to $75,063,856 for the fourth quarter of 1929, a new high record, bringing the total payments in cash for the year to $269,645,927, likewise a new high record, according to a compilation by Carl H. Pforzheimer & Co.

Payments for the closing quarter of the year registered a gain of $9,636,875 over the third quarter, due largely to extra dividends by Standard Oil Co. of Indiana, Standard Oil Co. of Kentucky, Ohio Oil Co. and Vacuum Oil Co., and a special dividend from the capital reduction account of the Southern Pipe Line Co.

The total for the full year, with only three minor payments for the closing quarter estimated, is a gain of $50,905,592 over the total of $218,740,335 for 1928. Standard of Indiana alone accounted for $12,846,228 of this increase, paying $45,262,757 for the current year, against $32,416,529 in 1928.

Standard Oil Co. of New Jersey this year paid $9,832,447 more than its 1928 disbursements, 1929 dividends aggregating $46,416,563. Prairie Pipe Line Co. also showed a substantial gain in cash returns to stockholders, disbursing $20,250,000 in 1929, an increase of $11,745,000 over the $8,505,000 paid last year.

The dividend total for the group this year was also increased by larger dividends by International Petroleum Co., Ltd., Imperial Oil, Ltd., Atlantic Refining Co., Anglo-American Oil Co., Ltd., South Penn Oil Co. and Humble Oil & Refining Co.

Special distribution by pipe line companies in the Standard group from capital reduction account totaled $6,200,000 for the year, payments being as follows: Indiana Pipe Line Co., $2,000,000; New York Transit Co., $3,100,000, and Southern Pipe Line Co., $1,100,000.

The record of quarterly and annual payments for the past few years follows:

| | First quarter | Second quarter | Third quarter |
|---|---|---|---|
| 1929 ... | $63,101,701 | $66,053,389 | $65,426,981 |
| 1928 ... | 48,927,670 | 57,694,206 | 50,068,102 |
| 1927 ... | 55,873,413 | 54,291,615 | 47,728,440 |
| 1926 ... | 40,580,317 | 50,618,451 | 46,443,278 |
| 1925 ... | 34,355,618 | 41,905,728 | 35,140,584 |

| | Fourth quarter | Full year |
|---|---|---|
| 1929 ..... | $75,063,856 | $269,645,927 |
| 1928 ..... | 62,050,357 | 218,740,335 |
| 1927 ..... | 55,804,755 | 213,698,223 |
| 1926 ..... | 62,685,548 | 200,327,594 |
| 1925 ..... | 42,104,169 | 153,506,099 |

In addition to cash dividends, a number of stock dividends were paid by companies in the Standard group during 1929. Standard Oil Co. of Indiana paid 50 per cent in stock in March; South Penn Oil Co. distributed a similar stock dividend in January; Prairie Pipe Line Co. distributed a 25 per cent stock dividend in January, and Standard Oil Co. of California declared a 2 per cent stock dividend in November.

**Employe-Stockholders**

Standard Oil Co. of New Jersey, one of the first companies in the oil industry to announce it would help employes protect their stock accounts in the recent flurry in Wall Street, has compiled an interesting report of the results of this offer, showing that less than one-half of 1 per cent of the employe-subscribers to its stock plan were in need of assistance during the market break.

"When several successive breaks in prices on the New York Stock Exchange established new low levels, in some cases but a third or a half of the prices registered a short while before," the company says, "it was reported that there were a large number of cases of distress among employe-shareholders of the Standard Oil Co. (N. J.). These reports were so circumstantial that the management took immediate steps to help those who stood in danger of losing their company stock. Notices were sent to all heads of departments, and to all executives of subsidiary units to advise men and women whose stock was likely to be closed out to bring a statement of their needs to the attention of a committee for relief.

"When it is known that there are 23,800 employes in the third stock acquisition plan who are buying company shares out of earnings, and recalling the popular estimates as to the percentage of Americans who were interested in the bull market, it was not unreasonable to expect a rush of applicants for aid. When the flurry was over it was found that the total was just 129—one-half of 1 per cent of the subscribers.

"That was interesting. No less so was the source of the applications. About 90 per cent originated in the offices at 26 Broadway, indicating that speculation was pretty closely confined to the immediate environs of Wall Street.

"It might be thought that the number who sought company loans was small because the participants either sold their stock previously or lost it when the market crash endangered its value as security. Here again the records offer surprising testimony.

"The New Jersey stock sold during the panic had to be transferred by November 15, the date of closing the books for the

## TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

**Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.**

| 1929 High | 1929 Low | Stocks— | Week ended Dec. 4 Sales | High | Low | Close |
|---|---|---|---|---|---|---|
| 42⅝ | 17½ | Amerada Corp. | 1,900 | 22 | 21¾ | 22 |
| 64¾ | 12½ | American Republics Corp. | 6,200 | 26¾ | 22¾ | 26⅝ |
| 47¼ | 40½ | Associated Oil | No sales. | | | |
| 77⅞ | 30 | Atlantic Refining | 23,500 | 43¼ | 41 | 43¼ |
| 49⅛ | 20 | Barnsdall Corp. | 26,000 | 27½ | 25⅝ | 27½ |
| 47⅛ | 18 | Continental Oil of Delaware | No sales. | | | |
| 92¾ | 42¼ | General Asphalt | 9,900 | 56½ | 53 | 56⅜ |
| 109 | 23 | Houston Oil | 16,000 | 59⅞ | 52¼ | 59⅞ |
| 39⅜ | 17¾ | Independent Oil & Gas | 3,800 | 25¾ | 24¾ | 25¼ |
| 53 | 13⅛ | Indian Refining | 8,300 | 22¾ | 20⅞ | 22¾ |
| 38⅜ | 16½ | Lago Oil & Transport | 200 | 22⅜ | 21½ | 22⅜ |
| 18 | 7 | Louisiana Oil Refining | 3,400 | 10⅛ | 9¾ | 10⅛ |
| 18½ | 7½ | Maracaibo Oil | 300 | 8 | 8 | 8 |
| 69⅜ | 9¼ | Mexican Seaboard | 71,800 | 23 | 18½ | 23 |
| 39⅞ | 22⅛ | Mid-Continent Petroleum | 3,400 | 29 | 28 | 29 |
| 5⅛ | 1½ | Middle States Oil | No sales. | | | |
| 69 | 40¼ | Pan American P. & T. | 500 | 62⅜ | 60¼ | 62⅜ |
| 69¼ | 40¼ | Pan American P. & T. "B" | 6,900 | 62¾ | 60⅜ | 62¾ |
| 18½ | 13⅝ | Pan American Western "B" | No sales. | | | |
| 15¼ | 3 | Panhandle P. & R. | 700 | 6 | 5¾ | 6 |
| 76 | 47½ | Panhandle P. & R. pfd. | No sales. | | | |
| 47 | 24¼ | Phillips Petroleum | 8,100 | 39 | 37½ | 38⅝ |
| 3⅜ | 1 | Pierce Oil Corp. | 300 | ¼ | ¼ | ¼ |
| 5⅞ | ½ | Pierce Petroleum | 400 | 2⅞ | 2¾ | 2⅞ |
| 65⅝ | 40½ | Prairie Oil & Gas | 2,300 | 56⅜ | 55⅞ | 56⅜ |
| 65 | 45 | Prairie Pipe Line | 200 | 59 | 59 | 59 |
| 25⅞ | 4 | Producers & Refiners | 1,800 | 11¾ | 10 | 11¾ |
| 46¾ | 30 | Producers & Refiners pfd. | No sales. | | | |
| 30¾ | 20 | Pure Oil | 7,500 | 24⅜ | 23½ | 24¼ |
| 49⅝ | 20 | Richfield Oil | 3,500 | 29¾ | 29 | 29¾ |
| 64 | 34½ | Royal Dutch, N. Y. | 15,500 | 55⅜ | 53¼ | 54½ |
| 55 | 43⅜ | Shell Transport & Trad. | No sales. | | | |
| 31¾ | 19 | Shell Union Oil | 2,700 | 24½ | 24 | 24½ |
| 40⅛ | 15 | Simms Petroleum | 5,700 | 28½ | 24¼ | 27½ |
| 45 | 21 | Sinclair Consolidated | 20,300 | 28 | 27⅛ | 28 |
| 111 | 108 | Sinclair Consolidated pfd. | 300 | 109 | 109 | 109 |
| 46½ | 28 | Skelly Oil | 3,100 | 34¼ | 33⅜ | 34¼ |
| 81⅞ | 51½ | Standard Oil of Cal. | 5,900 | 64 | 63 | 64 |
| 83 | 48 | Standard Oil of N. J. | 90,300 | 68⅜ | 65 | 68⅜ |
| 48⅛ | 31¾ | Standard Oil of N. Y. | 16,300 | 36¼ | 34¾ | 36¼ |
| 86⅜ | 55½ | Sun Oil | 200 | 60 | 60 | 60 |
| 24 | 5¼ | Superior Oil Corp. | 4,800 | 8 | 7½ | 8 |
| 71⅞ | 50 | The Texas Corporation | 13,700 | 58⅞ | 57⅜ | 58⅞ |
| 23⅞ | 9½ | Texas Pacific Coal & Oil Co. | 1,200 | 11⅞ | 11⅜ | 11⅞ |
| 40 | 14 | Tide Water Oil | 300 | 21¾ | 20⅜ | 21¾ |
| 97½ | 85⅛ | Tide Water Oil 5½% pfd. | No sales. | | | |
| 23½ | 10 | Tide Water Associated | 2,500 | 13¼ | 12¾ | 13⅛ |
| 90⅞ | 74⅛ | Tide Water Associated pfd. | 400 | 82 | 82 | 82 |
| 15¼ | 5⅛ | Transcontinental Oil | 37,900 | 9½ | 8⅞ | 9½ |
| 57 | 42⅛ | Union Oil of California | 1,100 | 46½ | 45⅛ | 46 |
| 163¾ | 121⅞ | Union Tank Car | No sales. | | | |
| 42⅞ | 15 | Warner-Quinlan | 3,000 | 24 | 23 | 24 |
| 38 | 25 | White Eagle Oil & Refining | 200 | 28½ | 28½ | 28½ |
| 29¾ | 12⅞ | Wilcox Oil & Gas | No sales. | | | |

| Stocks— | | Outstanding capital | Par value | Div. rate | Last paid | 1926 High | 1926 Low | 1927 High | 1927 Low | 1928 High | 1928 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Amerada Corp. | (sh) | 922,075 | N.P. | 50cQ | 7-31-29 | 32⅞ | 24¼ | 37⅝ | 27⅝ | 43⅞ | 27½ |
| American Republics Corp. | (sh) | 209,180 | N.P. | ..... | 3-20-29 | 74 | 39⅞ | 82½ | 35½ | 85 | 51½ |
| Associated Oil | | $57,260,300 | $25 | 50cQ | 9-30-29 | 60 | 44¾ | 50¼ | 35 | 53⅜ | 37½ |
| Atlantic Refining | | $50,000,000 | $25 | 25cQ* | 9-16-29 | 128⅜ | 97 | 131⅜ | 104 | 66⅝ | 50 |
| Barnsdall Corp. | | $45,235,650 | $25 | 50cQ | 8- 6-29 | 33½ | 23½ | 35½ | 20¾ | 53 | 20 |
| Continental Oil of Delaware | (sh) | 4,741,554 | N.P. | ..... | 3-31-27 | .. | .. | .. | .. | .. | .. |
| General Asphalt | | $20,785,400 | $100 | ..... | ..... | 94½ | 50 | 96¾ | 65 | 94⅞ | 68 |
| Houston Oil | | $25,000,000 | $100 | ..... | ..... | 72 | 50¼ | 175¾ | 60½ | 167 | 79 |
| Independent Oil & Gas | (sh) | 1,333,572 | N.P. | 50cQ | 7-31-29 | 34 | 19⅝ | 32¾ | 17⅝ | 38⅜ | 21¾ |
| Indian Refining | | $12,307,370 | $10 | ..... | 5-31-24 | 12¾ | 7½ | 12⅛ | 7⅝ | 39⅝ | 9 |
| Lago Oil & Transport | (sh) | 3,992,122 | N.P. | ..... | 5- 1-27 | 25⅞ | 16½ | 37¾ | 20½ | 39⅛ | 27⅜ |
| Louisiana Oil Refining | (sh) | 1,190,063 | N.P. | ..... | ..... | 19⅞ | 12 | 18⅛ | 10 | 19¾ | 9⅜ |
| Maracaibo Oil | (sh) | 330,000 | N.P. | ..... | ..... | 28 | 16½ | 22¾ | 12 | 25½ | 12½ |
| Mexican Seaboard | (sh) | 1,276,873 | N.P. | ..... | 12-15-20 | 13¾ | 6 | 9¼ | 3 | 73 | 4⅝ |
| Mid-Continent Petroleum | (sh) | 1,857,912 | N.P. | 50cQ | 8-15-29 | 37 | 20½ | 39⅜ | 25½ | 44½ | 25⅛ |
| Middle States Oil | | $24,298,850 | $10 | ..... | 7- 1-23 | 2½ | ½ | 3¾ | 1⅝ | 7⅜ | 2⅜ |
| Pan American P. & T. | | $50,084,700 | $50 | ..... | 10-20-27 | 76½ | 56⅛ | 65⅞ | 40⅛ | 54⅞ | 38¼ |
| Pan American P. & T. "B" | | $121,105,050 | $50 | ..... | 11-15-24 | 78⅜ | 56⅞ | 66⅜ | 40¼ | 58⅞ | 37¾ |
| Pan American Western "B" | (sh) | 400,000 | N.P. | ..... | 1-30-27 | 46 | 30 | 37⅞ | 16¾ | 28⅜ | 15½ |
| Panhandle P. & R. | (sh) | 199,370 | N.P. | ..... | ..... | 32 | 4½ | 18⅞ | 8 | 21¾ | 11½ |
| Panhandle P. & R. pfd. | | $2,564,400 | $100 | 37½cQ | 7- 2-23 | 99⅜ | 51 | 83 | 54 | 108 | 70 |
| Phillips Petroleum | (sh) | 2,406,796 | N.P. | 37½cQ | 10- 2-29 | 57⅜ | 40 | 60¼ | 36¼ | 53⅞ | 35¼ |
| Pierce Oil Corp. | | $29,622,831 | $25 | ..... | ..... | .. | .. | 1⅛ | ½ | 5¼ | ⅛ |
| Pierce Petroleum | (sh) | 2,500,000 | N.P. | ..... | ..... | 7 | 2¼ | 5½ | 2½ | 7 | 3½ |
| Prairie Oil & Gas | | $61,720,125 | $25 | 50cQ* | 9-30-29 | 60¼ | 48 | 55½ | 45⅝ | 68 | 46 |
| Prairie Pipe Line | | $101,250,000 | $25 | 75cQ† | 9-30-29 | 137½ | 122½ | 190 | 130¾ | 280 | 172 |
| Producers & Refiners | | $37,438,950 | $50 | ..... | 9-15-23 | 20¾ | 11 | 33⅞ | 16¾ | 29⅞ | 16 |
| Producers & Refiners pfd. | | $2,845,350 | $50 | 37½Q | 5- 1-25 | 41¾ | 30¾ | 50 | 36⅞ | 49⅝ | 41 |
| Pure Oil | | $75,959,250 | $25 | 37½Q | 9- 2-29 | 31 | 25¼ | 33½ | 25 | 31⅝ | 19 |
| Richfield Oil | | $47,964,650 | $25 | 50cQ | 8-15-29 | 27½ | 22 | 28⅝ | 25⅜ | 56 | 23 |
| Royal Dutch, N. Y. | (sh) | 611,303 | $13.40 | ..... | 8-13-29 | 57⅜ | 47⅜ | 54½ | 44¼ | 64 | 44⅝ |
| Shell Transport & Trad. | | £19,654,274 | £1 | $1.45 | 7-23-29 | 48⅝ | 40½ | 47⅞ | 41⅜ | 57½ | 40⅝ |
| Shell Union Oil | (sh) | 13,000,000 | N.P. | 35cQ | 9-30-29 | 31 | 24 | 31¾ | 24⅝ | 39¼ | 23¼ |
| Simms Petroleum | | $8,060,380 | $10 | 40cQ | 9-14-29 | 25⅝ | 15½ | 25⅜ | 14¼ | 27¼ | 18⅛ |
| Sinclair Consolidated | (sh) | 5,500,000 | N.P. | 50cQ* | 10-15-29 | 24⅞ | 15¾ | 22⅜ | 15 | 46¾ | 17⅜ |
| Sinclair Consolidated pfd. | | $16,025,250 | $100 | $2Q | 8-15-29 | 99½ | 90 | 104½ | 97 | 110 | 102½ |
| Skelly Oil | | $27,237,750 | $25 | 50cQ | 9-16-29 | 37⅛ | 26⅝ | 37⅝ | 24⅛ | 42⅝ | 25 |
| Standard Oil of Cal. | (sh) | 12,594,098 | N.P. | 62½cQ | 9-16-29 | 63⅝ | 51½ | 60⅜ | 50⅜ | 80 | 53 |
| Standard Oil of N. J. | | $620,079,800 | $25 | 25cQ* | 9-16-29 | 46⅜ | 37½ | 41⅜ | 35⅛ | 59⅜ | 37⅜ |
| Standard Oil of N. Y. | | $434,094,575 | $25 | 40cQ | 9-16-29 | 47¼ | 30⅜ | 34⅛ | 29¾ | 44¼ | 28¾ |
| Sun Oil | (sh) | 1,297,627 | N.P. | 25cQ | 9-16-29 | 41¾ | 30½ | 34⅞ | 30 | 77 | 31½ |
| Superior Oil Corp. | (sh) | 2,324,938 | N.P. | ..... | 12-20-20 | .. | .. | .. | .. | .. | .. |
| The Texas Corporation | | $211,076,650 | $25 | 75cQ | 10- 1-29 | 58 | 48 | 58 | 45 | 74¾ | 50 |
| Texas Pacific Coal & Oil Co. | | $8,380,340 | $10 | 5A‡ | 1- 3-28 | 19½ | 12 | 18⅞ | 12 | 26⅝ | 12⅛ |
| Tide Water Oil | (sh) | 2,191,759 | N.P. | 20cQ | 9-30-29 | 39¼ | 27 | 29⅛ | 19 | 41½ | 19⅝ |
| Tide Water Oil 5½% pfd. | | $20,705,200 | $100 | $1.25Q | 8-15-29 | 103 | 87¼ | 90⅛ | 85 | 100⅛ | 86 |
| Tide Water Associated | (sh) | 4,796,158 | N.P. | ..... | 8- 1-27 | 27 | 20⅞ | 19⅛ | 15¾ | 25 | 14¾ |
| Tide Water Associated pfd. | | $72,844,300 | ... | $1.50Q | 10- 1-29 | .. | .. | .. | .. | .. | .. |
| Transcontinental Oil | (sh) | 3,742,029 | N.P. | ..... | ..... | 5½ | 3 | 10⅜ | 3¾ | 14¾ | 7¼ |
| Union Oil of California | | $94,798,100 | $25 | 50cQ | 8-10-29 | 58⅜ | 37¼ | 56½ | 39⅝ | 58 | 42⅜ |
| Union Tank Car | | $31,061,200 | $100 | $1.25Q | 9- 3-29 | 120⅜ | 84¼ | 127½ | 94 | 128⅛ | 110 |
| Warner-Quinlan | (sh) | 356,000 | N.P. | 50cQ | 10- 1-29 | 30⅛ | 23½ | 34½ | 24½ | 44⅞ | 26 |
| White Eagle Oil & Refining | (sh) | 490,000 | N.P. | 50cQ | 10-21-29 | 29¾ | 25⅛ | 27½ | 20 | 38 | 20⅛ |
| Wilcox Oil & Gas | (sh) | 2,400,000 | N.P. | ..... | 5-10-28 | .. | .. | .. | .. | .. | .. |

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock. x Ex-dividend.

current dividend. When the returns came in from the transfer agent it was learned that the number of employes who sold a percentage of their stock acquisition shares sufficient to make them ineligible for further participation on the plan for a period of one year was just 64. Almost 100 per cent of the employe-stockholders still had their shares when the market turned upward.

"The result is a matter of the greatest satisfaction to the company. It indicates that the stock acquisition plan is making good the expectations which led stockholders to approve it. Most of the employes think too much of their stock to involve it in a speculative risk. They have faith in permanency of the business and cannot easily be driven out of their position by a slump in the market price of their shares. Both they and the larger body of outside stockholders are to be congratulated on the manner in which the employe-partner idea has been endorsed."

### Empire Gas & Fuel

Empire Gas & Fuel Co. declared regular monthly dividends of 50 cents on 6 per cent preferred, 54 1-6 cents on 6½ per cent preferred, 58⅓ cents on 7 per cent preferred, and 66⅔ cents on 8 per cent preferred, all payable January 2 to stock of record December 14.

### Bolsa Chica

Par value of the stock of the Bolsa Chica Oil Corp., Los Angeles, was increased from $1 to $10 at a special meeting of stockholders, December 5, 1929. There are outstanding 2,406,659 shares of "A" and 520,478 shares of "B", each of $1 par to be exchanged 10 for 1.

### Cumberland Pipe Line

At annual meeting of Cumberland Pipe Line Co., W. H. Keffer was elected a director to succeed D. L. Thomas. Other directors were re-elected. Officers were also re-elected.

### White Eagle

White Eagle Oil & Refining Co. has sold from capital stock, for cash, 13,762 shares at $28.30 per share, the proceeds going into the company's treasury for working capital. The balance of the additional 15,000 shares of the company's stock recently listed on the New York Stock Exchange have been exchanged for 413 shares of Nicholas Oil Corp. stock, giving White Eagle ownership of 2,873 shares of the 3,000 shares of the Nicholas company.

### Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

| | | | |
|---|---|---|---|
| June 28 | 56.70 | Sept. 21 | 57.93 |
| July 5 | 56.52 | Sept. 28 | 58.63 |
| July 12 | 55.69 | Oct. 5 | 57.00 |
| July 19 | 56.83 | Oct. 12 | 59.75 |
| July 26 | 55.62 | Oct. 19 | 58.70 |
| Aug. 3 | 55.09 | Oct. 26 | 54.59 |
| Aug. 10 | 54.15 | Oct. 31 | 42.29 |
| Aug. 17 | 60.32 | Nov. 8 | 48.31 |
| Aug. 24 | 60.61 | Nov. 15 | 47.61 |
| Aug. 31 | 60.90 | Nov. 22 | 47.76 |
| Sept. 7 | 59.16 | Nov. 29 | 48.60 |
| Sept. 14 | 60.40 | Dec. 6 | 50.60 |

# INDEPENDENT OILS ON NEW YORK CURB

**Quotations Compiled by Francis, Bro. & Co., Members of New York Curb Market, Kennedy Building, Tulsa, Okla.**

| 1929 High | 1929 Low | Week ended Dec. 4 Sales | High | Low | Close | Stocks— | Outstanding capital | Par value | Div. rate | Last paid | 1926 High | 1926 Low | 1927 High | 1927 Low | 1928 High | 1928 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72 | ⅛ | 400 | 3/16 | 3/16 | 3/16 | Amer. Con. Oilfields | $11,018,000 | $5 | ..... | ..... | $6.75 | .45 | 2 7/16 | .55 | 1½ | .53 |
| 8⅝ | 1⅛ | 300 | 1⅞ | 1¾ | 1¾ | Amer. Maracaibo | 700,000 | N.P. | ..... | ..... | .. | .. | 7½ | 2¾ | 9½ | 3⅛ |
| 5 | 1⅛ | 600 | 1⅜ | 1¼ | 1¼ | Argo Oil | 683,971 | $10 | ..... | ..... | .. | .. | 2¾ | 1 | 4½ | 2¼ |
| 62 | 7⅞ | No sales. | | | | British-American | 1,311,321 | N.P. | 25cQ | 10- 1-29 | 85¼ | 60 | 40 | 20½ | 55 | 32¾ |
| 4⅞ | 1 | 2,400 | 1⅛ | 1 | 1⅛ | Carib. Syndicate | $131,250 | 25c | ..... | ..... | 28⅜ | 9¼ | 28¼ | 15½ | 4½ | 3⅞ |
| 68⅛ | 20 | 24,500 | 30 | 29⅞ | 30 | Cities Service | 24,290,359 | N.P. | 30cQ* | 11- 1-29 | .. | .. | 58¾ | 40¼ | 90⅞ | 54 |
| 98¾ | 84 | No sales. | | | | Cities Service pfd. | 1,500,000 | N.P. | 50cM | 11- 1-29 | .. | .. | 95⅜ | 87 | 103½ | 94½ |
| 2 | ¼ | 900 | ⅝ | ⅝ | ⅝ | Colombia Syndicate | $2,000,000 | $1 | ..... | ..... | 3½ | 1¾ | 3⅞ | 1⅛ | 3¼ | .76 |
| 11⅛ | 2½ | No sales. | | | | Cons. Royalty | $5,000,000 | $10 | 15cQ | ..... | .. | .. | 9¾ | 6⅜ | 8⅞ | 6¼ |
| 11¾ | 5⅝ | 4,700 | 7 | 6⅝ | 7 | Creole Petroleum | 5,977,873 | N.P. | ..... | ..... | 16 | 10 | 14⅞ | 9½ | 17½ | 9½ |
| 2½ | ⅝ | No sales. | | | | Crown Central | 578,000 | N.P. | ..... | ..... | .. | .. | 3 | .50 | 3¼ | .76 |
| 26 | 6½ | 800 | 8¾ | 8⅝ | 8¾ | Darby Petroleum | 1,019,392 | N.P. | 25cQ | 10-15-29 | 7⅞ | 6¾ | 12 | 4 | 33½ | 3¼ |
| 11 | 2 | 400 | 5⅛ | 5⅛ | 5⅛ | Derby Oil & Refining | 500,000 | N.P. | ..... | ..... | .. | .. | 2½ | 74 | 2¼ | 1 |
| 44 | 20⅞ | No sales. | | | | Derby Oil & Refining pfd. | 48,500 | N.P. | ..... | ..... | .. | .. | 16¾ | 4 | 21⅛ | 7½ |
| 209 | 115 | 1,300 | 140⅞ | 136½ | 139¾ | Gulf Oil Corp. | 4,504,921 | $25 | 37½cQ | 10- 1-29 | 98 | 92 | 118 | 86¼ | 165 | 101⅛ |
| 2⅞ | ⅜ | 600 | ⅞ | ¾ | ⅞ | Intercontinental Pet. | $5,682,000 | $5 | ..... | ..... | $3.00 | .83 | 2½ | .80 | 3⅜ | 1 |
| 3⅝ | 1¼ | No sales. | | | | Kirby Petroleum | 750,000 | N.P. | ..... | ..... | .. | .. | 2¼ | 1⅛ | 3 | 1¼ |
| 6⅛ | 2 | No sales. | | | | Leonard Oil & Dev. | $50,000,000 | $25 | ..... | ..... | 12¼ | 5¾ | 10⅞ | 5⅛ | 9⅜ | 5⅛ |
| 38⅞ | 18 | No sales. | | | | Lion Oil & Refining | 250,000 | N.P. | 50cQ | 10-27-29 | 27 | 20 | 27½ | 20 | 43⅞ | 20 |
| 67⅞ | 28 | 1,200 | 37 | 35⅛ | 37 | Lone Star Gas | 5,000,000 | N.P. | 20cQ | 9-30-29 | 46 | 30 | 59¾ | 37 | 69⅛ | 48½ |
| 1¼ | ¼ | No sales. | | | | Magdalena Syndicate | 850,000 | $1 | ..... | ..... | 2⅞ | 1 | 2⅞ | .80 | 1⅞ | .50 |
| 38½ | 17¾ | No sales. | | | | Margay Oil | 160,000 | N.P. | 50cQ | 10-10-29 | 34 | 12½ | 52 | 12 | 48½ | 32 |
| 6⅜ | 2½ | No sales. | | | | Mexico-Ohio Oil | ..... | ... | ..... | ..... | 8 | 5½ | 12⅛ | 5 | 8 | 2¾ |
| 1½ | ¼ | 100 | ¾ | ¾ | ¾ | Mountain & Gulf | $4,000,000 | $1 | 2cQ | 10-15-29 | 1¾ | 1⅛ | 1½ | 1 | 1¾ | .76 |
| 22⅞ | 7 | 600 | 9½ | 9¼ | 9½ | Mountain Producers | $1,682,182 | $10 | 40cQ | 10- 1-29 | 26 | 23 | 29¼ | 22¾ | 28⅞ | 19½ |
| 5 | 2¼ | 400 | 3 | 3 | 3 | New Bradford Oil | $1,095,291 | $5 | 12½cQ | 10-15-29 | 6⅝ | 5 | 5⅞ | 4⅝ | 5⅝ | 4¼ |
| 9⅜ | 2¼ | No sales. | | | | New Mex. & Arizona | $1,000,000 | $1 | ..... | ..... | .. | .. | 16 | 9¼ | 11⅞ | 7⅛ |
| 18½ | 6⅛ | 1,500 | 8 | 7½ | 8 | North Central Texas | 400,000 | N.P. | 15cQ | 9- 3-29 | .. | .. | 12⅜ | 9½ | 14¼ | 8½ |
| 3½ | ½ | 100 | 11/16 | 11/16 | 11/16 | Pandem | 489,875 | N.P. | ..... | ..... | 10⅛ | 5⅞ | 9⅜ | 3¼ | 6 | 2⅛ |
| 10¼ | 2⅝ | 2,100 | 3½ | 3½ | 3½ | Pantapec Oil | 1,506,600 | N.P. | ..... | ..... | 12¼ | 11¾ | 12⅛ | 7 | 15⅝ | 8½ |
| 7¾ | 4⅜ | No sales. | | | | Pennok Oil | 150,000 | N.P. | ..... | ..... | 22¾ | 12 | 13½ | 5⅛ | 7¾ | 4⅞ |
| 16 | 9⅝ | No sales. | | | | Red Bank Oil | 250,000 | N.P. | ..... | ..... | 17 | 8½ | 24⅜ | 7 | 18 | 4⅞ |
| 8½ | 1⅛ | 600 | 3¼ | 3 | 3 | Reiter-Foster | 388,584 | N.P. | 10cQ | 9- 1-29 | 30¼ | 12 | 15½ | 3½ | 12⅞ | 4⅛ |
| 11 | 3 | 500 | 4½ | 4⅛ | 4⅛ | Ryan Consolidated | 500,000 | N.P. | ..... | ..... | 7 | 4½ | 7 | 4½ | 12 | 4⅛ |
| 5⅞ | 1⅞ | No sales. | | | | Salt Creek Consolidated | 1,286,300 | $10 | 10cQ | 10- 1-29 | 10 | 7⅛ | 8 | 5¼ | 7¼ | 5½ |
| 25⅞ | 9 | 4,700 | 12⅞ | 12⅜ | 12¾ | Salt Creek Producers | 1,496,859 | $10 | 50cQ | 11- 1-29 | 35 | 24⅛ | 35½ | 27¼ | 35 | 23⅛ |
| 2½ | 1/16 | No sales. | | | | Savoy Oil | $750,000 | $5 | ..... | ..... | 6⅞ | 1¼ | 7 | 1¼ | 3½ | 1 |
| 145 | 82 | No sales. | | | | Transcontinental pfd. | 157,500 | $100 | ..... | ..... | 92 | 63½ | 92 | 63½ | 93¼ | 75 |
| 6½ | 1¾ | 600 | 2⅜ | 2¼ | 2⅜ | Venezuelan Petroleum | 755,090 | $5 | 5cQ | 8-15-29 | 8 | 4½ | 7⅜ | 4¼ | 9½ | 4¾ |
| 9½ | 2 | No sales. | | | | Woodley Petroleum | $500,000 | $1 | ..... | ..... | 8⅛ | 5½ | 7 | 4⅜ | 8¼ | 4⅞ |
| 2⅞ | ½ | No sales. | | | | "Y" Oil & Gas (new) | 100.000 | N.P. | ..... | ..... | 6½ | 6 | 6 | 1¾ | 8⅜ | 2⅛ |

*Including extra in stock.

# STANDARD OIL STOCKS ON NEW YORK CURB

**Quotations Compiled by Francis, Bro. & Co., Members of New York Curb Market, Kennedy Building, Tulsa, Okla.**

| 1929 High | 1929 Low | Week ended Dec. 4 Sales | High | Low | Close | Stocks— | Outstanding capital | Par value | Div. rate | Last paid | 1926 High | 1926 Low | 1927 High | 1927 Low | 1928 High | 1928 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 14 | 4,400 | 16½ | 16½ | 16½ | Anglo-American Oil | £4,192,635 | £1 | ..... | 6- 5-29 | 21 | 16 | 21⅝ | 17⅞ | 22⅜ | 14⅞ |
| 46½ | 25 | No sales. | | | | Borne Scrymser | $1,000,000 | $25 | $18.A. | 10-15-29 | 76 | 65 | 69 | 50 | 56½ | 44½ |
| 74¼ | 55 | 300 | 69⅜ | 69⅜ | 69⅜ | Buckeye Pipe Line | $10,000,000 | $50 | $1Q | 9-14-29 | 59½ | 42 | 60 | 45 | 76 | 53 |
| 210 | 130 | No sales. | | | | Chesebrough Mfg. | $3,000,000 | $25 | $1Q* | 9-30-29 | 82½ | 65 | 126 | 76½ | 161 | 117 |
| 29 | 8⅞ | 500 | 16⅛ | 16 | 16 | Continental Oil | $36,057,840 | $10 | ..... | 12-15-27 | 25⅞ | 17½ | 22⅝ | 16¼ | 23 | 16 |
| 75¾ | 40 | 50 | 52½ | 52½ | 52½ | Cumberland Pipe Line | $1,500,000 | $50 | $1Q | 9-15-29 | 137 | 102 | 137 | 89 | 114 | 67 |
| 70½ | 42 | 250 | 53¼ | 50 | 53¼ | Eureka Pipe Line | $5,000,000 | $100 | $1Q | 11- 1-29 | 63¾ | 43 | 68½ | 47 | 88 | 64⅛ |
| 6⅝ | 5 | No sales. | | | | Galena Signal Oil | $16,000,000 | $100 | ..... | ..... | 32½ | 9⅞ | 13½ | 3½ | 13 | 4¼ |
| 128 | 74⅛ | 2,600 | 93 | 89⅜ | 93 | Humble Oil & Refining | $74,103.300 | $25 | 30cQ† | 10- 1-29 | 68½ | 52 | 68½ | 54 | 114¾ | 59¼ |
| 340½ | 260 | 850 | 320 | 316½ | 319 | Illinois Pipe Line | $20,000,000 | $100 | $10S.A. | 6-15-29 | 144½ | 125½ | 182 | 123¾ | 290½ | 176½ |
| 41 | 22 | 3,500 | 29½ | 28 | 29¼ | Imperial Oil Co., Ltd. | 26,421,768 | N.P. | 12½cQ | 9- 3-29 | .. | .. | 64¾ | 37¾ | 104 | 56¾ |
| 42⅛ | 26 | 800 | 41 | 40½ | 41 | Indiana Pipe Line | $3,000,000 | $10 | 50cQ‡ | 11-15-29 | 72½ | 58 | 94½ | 61 | 91⅞ | 74⅜ |
| 30⅜ | 15 | 3,400 | 24½ | 22⅝ | 24 | International Pet. | 14,247,088 | N.P. | 12½cQ | 6-25-29 | 35½ | 28¾ | 29 | 28¼ | 55 | 35 |
| 25⅞ | 10½ | 1,400 | 23⅞ | 23⅛ | 23¾ | National Transit | $6.362.500 | $12.50 | 25cQ | 9-26-29 | 20¾ | 12½ | 24 | 13½ | 32⅜ | 19⅜ |
| 16 | 10 | No sales. | | | | New York Transit | $1,000,000 | $10 | 40cQ | 10-15-29 | 51½ | 27¼ | 44½ | 31¼ | 75 | 38½ |
| 63 | 45 | No sales. | | | | Northern Pipe Line | $2,000.000 | $50 | $2S.A. | 7- 1-29 | 80½ | 64 | 100 | 70 | 69 | 56½ |
| 79⅞ | 64⅛ | 900 | 70½ | 70⅜ | 70½ | Ohio Oil | $60,000,000 | $25 | 50cQ‡ | 9-16-29 | 67¾ | 55¾ | 67⅞ | 52 | 84 | 58½ |
| 44½ | 21 | No sales. | | | | Penn Mex. Fuel | $10,000,000 | $25 | 50cQ | 12-15-28 | 24¾ | 15 | 39 | 12 | 84 | 28 |
| 50 | 33 | No sales. | | | | Solar Refining | $4,000.000 | $25 | $1.25S.A. | 6-20-29 | .. | .. | .. | .. | .. | .. |
| 22½ | 13 | No sales. | | | | Southern Pipe Line | $1,000.000 | $10 | 50cQ | ..... | 74½ | 61½ | 27¼ | 15½ | 19 | 15 |
| 60¼ | 35⅛ | 600 | 41¼ | 41⅛ | 41⅛ | South Penn Oil (new) | $30,000,000 | $25 | 50cQ | 9-30-29 | 50 | 34½ | 41½ | 35 | 71⅞ | 36¾ |
| 70 | 60 | No sales. | | | | Southwest Pa. Pipe Lines | $1,750.000 | $50 | $1Q | 10- 1-29 | 56 | 47½ | 83 | 55½ | 102 | 70 |
| 63 | 45 | 23,400 | 55⅜ | 53¾ | 55¼ | Standard Oil of Indiana | $348,175.069 | $25 | 62½cQ | 9-16-29 | 70½ | 60½ | 81½ | 64⅝ | 95⅞ | 70⅞ |
| 33¾ | 18 | 200 | 27 | 26½ | 27 | Standard Oil of Kansas | $8,000.000 | $25 | ..... | 6-16-24 | 36½ | 16½ | 20⅞ | 14⅝ | 37¾ | 15 |
| 46⅞ | 29 | 1,600 | 38 | 37⅜ | 38 | Standard Oil of Kentucky | $25,654,516 | $10 | 40cQ | 9-30-29 | 134⅜ | 108 | 130 | 111½ | 179¾ | 122¼ |
| 50¼ | 45 | No sales. | | | | Standard Oil of Nebraska | $4,649,225 | $25 | 62½cQ‡ | 9-30-29 | 51⅛ | 42 | 49½ | 40 | 54⅞ | 39⅞ |
| 129 | 60 | 300 | 89⅝ | 87½ | 89⅝ | Standard Oil of Ohio | $14,000,000 | $25 | 62½cQ | 10- 1-29 | 372 | 288 | 87½ | 72 | 134 | 71 |
| 18 | 10 | No sales. | | | | Swan-Finch Co. | $861,466 | $25 | ..... | 1-15-29 | 21 | 15 | 21 | 14½ | 23½ | 16 |
| 133¾ | 75 | 1,800 | 99⅞ | 95½ | 99⅞ | Vacuum Oil Co. | $126,180,350 | $25 | $1Q | 9-30-29 | 109⅜ | 90¼ | .. | .. | 111 | 72 |

*Plus 50 cents extra. †Plus 20 cents extra. ‡Plus 25 cents extra. x Ex-dividend.

## MANY PHASES TO REFINERY CORROSION

(Continued from Page 46)

are not machinable, and are assembled and attached in the furnace entirely by cast openings, projections, and keys. Due to their use in preventing sagging of the hottest tubes in the heater, and the difficulty of replacement, only the best tried materials should be used.

(b) The application of X-ray metallography to special castings, such as tube headers, is being developed with the idea of making it commercially useful. This method has been used by some valve manufacturers on selected castings to improve foundry practice on such items as valve bodies, but the cost for general application has hereto been excessive.

(c) It is hoped that an electrical resistance method for the determination of transverse flaws in rolled steel can be made applicable to the spotting of longitudinal flaws in still tubes, a type of defect which is occasionally encountered.

(d) The use in certin processes of hot oil charging pumps, which draw the recycle stock from some part of the hot oil system, has led to the incorporation in such pumps of stainless iron parts of approximately 14 per cent chromium with carbon not over 0.12 per cent. This material is corrosion-resistant without hardening and polishing. It is used in pump valves, seats, and plungers, and for piston rods of that type of hot oil pump. In all cases the material is normalized after forging, and has a Brinell hardness of 200. Chromium plating of ball valves has to date not been an unqualified success, because of peeling after a short period of operation.

Cast iron plungers may be used at low temperature ranges, say not over 350° F., but at higher temperatures their use is questionable. Additional experience is being developed along this line.

(e) The various methods of chromium plating which have been applied in protecting interior surfaces of cracking stills have been outlined by a well-known manufacturer, and an abstract of this statement follows:

"The exact plating procedure for any particular vessel depends upon the details of the construction of the vessel (location of manholes, type of vessel, position of welded seams, size of vessel, contour, etc.). The four principal procedures which have been used on this type of work can be classified as follows:

"1. Rotating anode method.

"2. Horizontal stationary anode method.

"3. Traveling anode method.

"4. Cell method.

"All but the second of these methods have been used in the field, with particular success on the first and third listed.

"The second method was developed for plating vessels at the place where they are manufactured; and is not so desirable for plating vessels already erected, since this method requires that the chambers be in a horizontal position.

"The first method mentioned above, viz., the rotating anode method, is that which was used successfully in plating the Shell Oil Co.'s reaction chambers at Martinez; and consists of an anode structure erected inside the vessels in a vertical position, with anode plates supported by radial arms, rotated by a central, longitudinal, driving shaft. The anode plates are spaced a few inches from the wall of the vessel. The vessel itself serves as a container for the electrolyte, and is connected as the cathode; and the plate is deposited on the surface of the chamber, while the anode structure is slowly rotated by a driving mechanism, mounted on the top of said chamber.

"The second, or horizontal, stationary method, is substantially the same as the first, except that the vessel is plated in a horizontal position, and is mounted on rollers during the plating operation. Instead of the anode rotating, it is stationary—the vessel being slowly rotated during the plating operation. The advantages of this method over the first are that it requires only one-half the volume of electrolyte for a given sized chamber; and, in addition, the electrical connections are simpler.

"Where applicable, the third method, viz., the traveling ring anode method, is more satisfactory. It can be used, however, only in vessels that have no protruding lugs, hooks or tubes on the inside of same. In other words, the vessel must be smooth-walled. This method was used to plate the vessels at the El Segundo refinery of the Standard Oil Co. of California. The thickness of the coatings applied on these chambers is about 0.002 inch, and the chromium is plated directly on the steel. No intermediate coatings were used; and our company does not recommend that any such coatings should be used, as we are not aware of any metal that can be applied electrolytically which would be in a position to stand up against the temperature and corrosive conditions present in reaction chambers used for oil cracking. This method consists of plating from a ring anode in the form of a band, 1 or 2 feet wide and a little smaller in diameter than the chamber itself. This ring anode is mounted inside the chamber, concentric with the walls thereof, and separated from same by means of a gasket device at the bottom edge. The walls of the chamber, together with the walls of the ring anode and the gasket, form a trough within the chamber walls. This trough is kept full of electrolyte, with the ring anode side of the trough as anode, and the chamber wall as cathode. The current passes through the electrolyte held in the trough, and deposits chromium on the wall of the vessel. To plate the whole chamber, this anode ring travels the full length of the cylindrical shell of the chamber; and the heads are plated by either a small rotating anode device or by a special anode cell.

"The principal advantages of this method are high electro-chemical efficiency, shorter over-all plating time, simple anode design, very small volume of electrolyte required, etc.

"The fourth method, viz., the cell method, is one of the first developed, and is described in King patent (U. S. Pat. 1,582,407). It consists of plating from one or more anodes of suitable size (about 4 feet square usually), which are in the form of cells, to be forced against—but insulated from—the wall of the vessel, and through which the electrolyte is circulated. This method is quite satisfactory; but for large areas, requiring repeated shifting of the anodes, it is not as economical as the methods outlined above.

"To give some idea of figures relative to cost, we cite those set forth in a recent proposal we made for plating some 5-foot by 40-foot stills, in units of four stills and on a time schedule of four vessels per month, including preparation of the base metal for plating. The equipment cost is $30,500; this includes electrolyte, anode apparatus, electrical equipment (including a 5,000 ampere, 12-volt motor generator set), complete sand blasting equipment, and storage, pumping and cooling facilities. This figure includes equipment which may already be available at various refineries contemplating doing this type of work. The apparatus may be used for plating a large number of vessels. The plating cost per still, including royalties and preparation of the surface, can be figured at about $5 per square foot. The total cost of a still 5-foot by 40-foot would be in the neighborhood of $3,000 to $3,500. Attention should be called to the fact that a great part of this cost is in connection with the initial preparation of the surface for plating. The surface must be carefully inspected; must be free from nonmetallic inclusions, smooth and carefully cleaned of grease and oxides, so that it may present good, clean metal as groundwork for building up a coating of chromium."

The successful applications of chromium plating claimed are in continued operation; and we await final report of the condition of this plating, when a satisfactory inspection can be made. The expense involved and the difficulty of repairs, if needed, place this kind of work on large vessels still in the experimental class, although it is hoped that it will stand up the required time to prove its ultimate success.

### Tubular Equipment

The records available on this subject, together with the supplements to these records which bring them up to date, have been collected and summarized. They will be classified and discussed under the following headings:

(a) Corrosion due to water used as a cooling medium.

1. Water used as spray on condensers and coolers.

2. Coil or apparatus submerged in or containing water.

(b) Corrosion due to vapors and condensates from crude distillation.

(c) Corrosion due to vapors and condensate from the distillation of acid treated distillates.

(d) Corrosion due to pressure distillate from cracking units.

(e) Corrosion due to crudes being heated in exchangers.

**(a) Corrosion Due to Water Used as a Cooling Medium**

1. Water used as spray on condensers and coolers: The use of water sprays on open cooling coils has been found to result in rather severe corrosion. This is probably due to the free access of oxygen to the spray. The use of protective coatings has not been successful, the only method reported which prevents corrosion being the use of alloy tubing. The corrosion can be greatly reduced by substituting a submerged cooler.

2. Coil or apparatus submerged in or containing water: It is in this class that most refinery condensers and coolers fall. This type of corrosion has been extensively studied, but most of the remedies which are efficacious in ordinary underwater corrosion cannot be applied to refinery condensers. Protective coatings are ruled out if they are not of good thermal conductivity. This eliminates all but metallic plating, which is quite expensive. Equally, the treatment of the water chemically to remove corrosive substances is uneconomic on account of the very large volumes of water used.

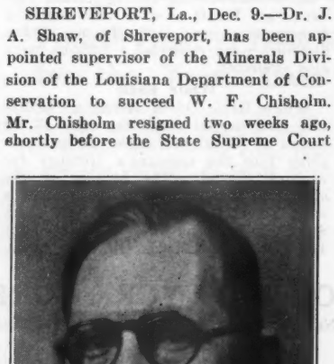
In cases where salt water is used, the possibility of electrolytic corrosion is always present. Great care must be used in the selection of the metal used for bolts in salt water service, because of the intensive corrosion of the bolts which occurs if they are anodic rather than cathodic to the material.

**(b) Corrosion Due to Vapors and Condensates From Crude Distillation**

This is by far the most serious and extensive source of corrosion in condensing and cooling equipment. It is quite generally recognized that this corrosion is mainly due to hydrochloric acid set free from the chlorides of calcium and magnesium contained in the crude. Hydrogen suphide alone does not appear to cause rapid corrosion of condensing equipment, but in the presence of these mineral acids the corrosion may be most severe. The fact that water is necessary to hydrolyze the chlorides and form hydrochloric acid makes it possible, in some cases, to avoid corrosion by running the crude without steam. This is, of course, only possible in a skimming operation, and hence is not practicable if a complete distillation is made. It is of material assistance if the water which contains the dissolved chlorides can be thoroughly settled out of the crude before distillation. In one case, the addition of caustic soda solution to a highly cor-

## SHAW SUCCEEDS CHISHOLM AS HEAD OF LOUISIANA'S MINERAL DIVISION

SHREVEPORT, La., Dec. 9.—Dr. J. A. Shaw, of Shreveport, has been appointed supervisor of the Minerals Division of the Louisiana Department of Conservation to succeed W. F. Chisholm. Mr. Chisholm resigned two weeks ago, shortly before the State Supreme Court issued its final ruling against Dr. V. K. Irion, commissioner of conservation, in the latter's action contesting Governor Huey P. Long's ouster order. Doctor Shaw's appointment by Robert Maestri, Doctor Irion's successor, was announced a few hours after Mr. Maestri took office.

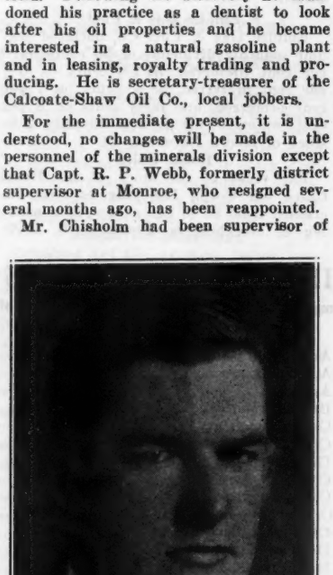


Dr. J. A. Shaw

Doctor Shaw, a native of Homer, La., was one of the largest beneficiaries of the Homer oil strike 10 years ago, owning with other members of the family much of the most productive part of the field. Following the discovery he abandoned his practice as a dentist to look after his oil properties and he became interested in a natural gasoline plant and in leasing, royalty trading and producing. He is secretary-treasurer of the Calcoate-Shaw Oil Co., local jobbers.

For the immediate present, it is understood, no changes will be made in the personnel of the minerals division except that Capt. R. P. Webb, formerly district supervisor at Monroe, who resigned several months ago, has been reappointed.

Mr. Chisholm had been supervisor of the minerals division since 1926. He had an important part in the development of the Monroe and Richland Parish gas districts. It was said that he would become head of the Halliburton Oil Well Cementing Co.'s activities in the Shreveport district.



W. F. Chisholm

rosive crude, which was being distilled without steam, actually increased corrosion by causing increased hydrolysis of the chlorides present and not effecting complete neutralization of the hydrochloric acid set free.

The remedy for this type of condenser corrosion is the feeding of a neutralizing agent. Both ammonia and caustic soda have been used for this purpose. Ammonia can be introduced in the vapor line ahead of the fractionating equipment, while caustic must be used just ahead of the condensing equipment. The feeding of caustic to the stills with the crude is very effective in most instances. If this is done, care should be taken to secure adequate incorporation of the caustic with the crude; or it may settle out in the stills and cause bottom trouble. Some refiners have not been able to justify the use of ammonia as a neutralizer, but others claim to have found it beneficial. In any case, the decision as to whether or not to use a neutralizer can only be determined by experiments to determine whether the benefit derived is sufficient to justify its use.

**(c) Corrosion Due to Vapors and Condensates From the Distillation of Acid Treated Distillates**

This type of corrosion is found when acid treated naphtha or water white distillates are rerun. It is caused by sulphur dioxide and sulphur trioxide, which form sulphurous and sulphuric acids when dissolved in the condensed water in the condenser coils. These oxides of sulphur are given off by the treated distillate during distillation, on account of thermal decomposition of unstable sulphuric acid compounds formed during the acid treating. The methods of combating this type of corrosion are the same as those used in crude distillation.

**(d) Corrosion Due to Pressure Distillate From Cracking Units**

The corrosion of condensers used on cracking units is ordinarily not serious if gas oil is being cracked. There is no salt to generate hydrochloric acid, and the hydrogen sulphide alone is not especially corrosive at the low temperatures of cooling coils. Exchanger equipment operating at high temperature may show corrosion.

**(e) Corrosion Due to Crudes Being Heated in Exchangers**

Considerable corrosion of exchanger equipment is caused by the presence of corrosive salts in the crude. If caustic soda is to be added to the crude stream, this might be eliminated by the introduction of the caustic ahead of the exchangers.

**Protection of Surfaces**

Corrosion of this nature in the refinery is largely confined to tanks, because other structures are painted in the same way as has always been the custom in industrial plants, i.e., by means of a good primer, usually red lead, applied to surfaces cleaned fairly well with scrapers and wire brushes, to be followed by one or more coats of aluminum, red oxide or elastic paints, according to the individual ideas of the plant superintendent. The selection of paints is, of course, made by trial; and the frequency of painting depends upon the money available for this purpose. In any case, such methods of painting, if intelligently followed, will not lead to any great losses by corrosion.

The principal other items of equipment which are liable to deteriorate by reason of corrosion are tanks—and in some cases piping.

For piping, the same method of protection can be applied as found useful in the pipe line field: but this is seldom done, except on isolated lines, because lines carried together in conduits—as is customary in refineries—usually leak sufficiently to keep a coating of oil on the outside surface which forms sufficient protection.

There remains, therefore, the large item of tankage in refineries; and while the committee has studied corrosion reports received on tankage in the producing fields, the following data are compiled, as far as we know, entirely on reports from refineries:

As a result of questionnaire sent out last August 17 refiners reported little or no difficulty with corrosion on tanks in refineries, and in a few cases stated that only isolated attempts are made to protect the underside of roof and inside of top ring of tanks.

Their conclusion is that tanks last from five to ten years, and there have been no tank failures due to corrosion on working tanks for a period of three and one-half years in handling products from Panhandle crude. Also, that practically no corrosion takes place on dead storage after the first eight months, particularly if the vapor space is small and roofs are vapor-tight. The reduction of corrosion with time in storage is similarly encountered in the handling of distillates from sour crudes, which are very corrosive when freshly made. This is to be expected, as the active corrosive agents are neutralized by their attack on the metal in the tank. Also the initial temperature may be somewhat higher than it is subsequently; and any internal reactions that may take place would be completed after a short time in storage.

The use of breather roofs in the oil producing district can seldom be duplicated for refinery storage, as products are rarely stored for a considerable length of time. The proper method of making full use of the breather roof is to keep the oil in contact with the under surfaces of the roof sheets by preventing breathing, thereby reducing evaporation and also corrosion.

Two companies reported some tank corrosion experience, but the present policy is to leave the steel in the vapor space unprotected. Their conclusion is that it is less expensive to replace the roof when corroded than to paint every four to six months. They claim tank roofs last from three to six years, and that the most severe corrosion in refinery tanks comes from high sulphur crudes (Crane-Upton, Winkler and similar) and their distillates; also pressure still distillates and aluminum chloride distillates.

The use of aluminum in tank roofs is covered in a paper entitled "Aluminum and Its Alloys as Corrosion-Resistant Materials in the Oil Industry," by Stanley Gill.

One refinery in Texas reports at least 57 tests on a great number of paint combinations for the inside of tanks, particularly for the vapor space, only four of which gave satisfactory results in a total test time of 136 to 204 days, while two were reported as in fair condition after 366 days. One red lead primer was reported in good condition after 297 days, although the second coat had completely disappeared.

Another company reported on over 30 tests on samples with no promise of a practical paint protection.

The above data were obtained on test panels made of old corroded tank steel that had been sand blasted, sometimes after boiling in lye. After painting, they were inserted in the space between the rafter and roof sheet or hung from the rafters, so as to have almost the exposure that the roof sheet has. Unfortunately, some of the panels were lost during the operation.

Panel tests, in general, are not conclusive, but only indicative of possibilities in actual service. The net result on paint tests is: that, of eight reports showing work being done along this line on over 100 different kinds of paint, there was no satisfactory inside protective paint coating found. On two-thirds of the coatings tested, three months was the maximum protection that could be gained; and none could be depended upon for one year in actual service. The tests made by different investigators, under naturally different conditions, cannot always be comparable.

It is almost impossible to clean the inside surface of a tank in service to apply the paint protection or other coating satisfactorily. Also the expense of cleaning and freezing the tank of gas and the cost of sand blasting, are so great that the total cost of protection is prohibitive, as compared to replacing the roof and upper ring at much longer intervals when required.

The general conclusion is, therefore, that for the present it is cheaper to install a heavier plate of not less than three-sixteenths inch, using rivets of similar composition to the plate; and that for sour crudes or distillates, either copper bearing steel or armco iron is preferable to plain steel.

Metallic coatings have been more successful than paint applications, although some failures have been reported for which conditions of application may not have been as favorable as the users expected or as the manufacturer of the spray coating apparatus would recommend. The expense of such coatings, however, seems prohibitive, compared to replacing the roof—using a thicker material than the old practice dictates.

Corrosion can be reduced by making and keeping the roofs gas-tight, which means that some satisfactory method of gauging without losing gas in vapor space must be developed and adopted. This is not the function of this committee.

The outside of refinery tanks does not present as serious a problem to the refiner, if he properly cleans and brushes the surface and uses good quality material.

A primer of good red lead, sprayed or/ and brushed well into the surface and permitted to dry before applying the second coat, all under favorable weather conditions, offers satisfactory protection. Any number of satisfactory finish coats may be purchased on the market and applied satisfactorily over a good primer.

Some preference may be indicated for a heavy plastic coat on the roof of the tank, on the basis that it has some insulating properties which reduce condensation on the underside—a condition which accelerates corrosion. Reports on the actual service of such paints for at least two years is awaited with interest.

**Miscellaneous Equipment**

There are a number of places in the refinery where corrosion occurs which are not covered by the preceding heading, but usually under low temperature conditions where well-tried protection can be applied in line with similar experience in other industries.

In this class we have steam boiler plants, sulphuric acid concentrators, alkali treating plants, and exterior atmospheric corrosion at various temperatures of exposed surfaces, with more or less humidity and traces of corrosive vapors (sulphur dioxide and hydrogen sulphide). Also in ammonia vapor apparatus, proper material specifications are well-known.

## MID-CONTINENT REFINERY RUNS LESS

(Continued from Page 38)

**REFINERY OPERATIONS IN KANSAS**

(Plants which have been in operation during the past year)

| Name and address— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Barnsdall Refineries, Inc., Wichita | 4,000 | (*) | 200 |
| Derby Oil Co., Wichita | 6,000 | 4,000 | 4,000 |
| Eldorado Refining Co., Eldorado | 3,500 | 2,700 | 3,000 |
| Golden Rule Refining Co., Wichita | 1,500 | 800 | 850 |
| Kanotex Refining Co., Arkansas City | 10,000 | 4,500 | 4,000 |
| Independent Oil & Gas Co., Kansas City | 6,000 | 5,000 | 5,000 |
| National Refining Co., Coffeyville | 6,500 | 6,000 | 6,000 |
| Peerless Oil Refining Co., Chanute | 3,000 | 1,800 | 1,700 |
| Shell Petroleum Corp., Arkansas City | 22,000 | 17,000 | 17,000 |
| Sinclair Refining Co., Coffeyville | 10,000 | 10,000 | 10,000 |
| Sinclair Refining Co., Argentine | 9,500 | 6,500 | 6,500 |
| Skelly Oil Co., Eldorado | 23,000 | 10,700 | 12,300 |
| Standard Oil Co. of Kansas, Neodesha | 12,000 | 11,000 | 11,000 |
| Vickers Petroleum Co., Potwin | 3,500 | 2,300 | 2,300 |
| White Eagle Oil & Refining Co., Augusta | 10,000 | 8,000 | 8,000 |
| Wilhoit Refining Co., Joplin, Mo. | 1,500 | (*) | (*) |
| Total | 132,000 | 90,300 | 91,950 |

*Shut down.

**REFINERY OPERATIONS IN WEST TEXAS**

(Plants which have been in operation during the past year)

| Name and address— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Big Spring Refining Co., Big Spring | 2,500 | 1,700 | 1,700 |
| Bluebonnet Oil Refining Co., Wickett | 5,000 | 2,700 | 3,000 |
| Burford Oil Co., Pecos City | 6,000 | 4,700 | 5,000 |
| Central Texas Refining Co., Brownwood | 2,000 | 700 | 700 |
| Central Texas Refining Co., Luling | 2,500 | 1,700 | 2,500 |
| Col-Tex Refining Co., Colorado | 10,000 | 7,000 | 7,000 |
| Cosden Co., Inc., Big Spring | 15,000 | 8,000 | 7,700 |
| Del Rio Refining Co., Del Rio | 5,000 | 3,500 | 3,000 |
| Grayburg Oil Co., San Antonio | 6,000 | 2,400 | 2,400 |
| Great Western Refining Co., Big Spring | 8,500 | 3,800 | 3,700 |
| Gulf Oil & Refining Co., Sweetwater | 5,000 | 5,000 | 5,000 |
| Humble Oil & Refining Co., San Antonio | 5,000 | 4,500 | 4,500 |
| Humble Oil & Refining Co., McCamey | 15,000 | ‡8,100 | 8,100 |
| Misko Refineries, Inc., Laredo | 1,500 | 500 | 500 |
| Mid-Tex Refining Co., Midland | 2,500 | 500 | 900 |
| Pasotex Petroleum Co., El Paso | 10,000 | 5,000 | 5,000 |
| Pecos Valley Refining Co., Pyote | 8,500 | (*) | (*) |
| Pioneer Oil & Refining Co., Somerset | 1,500 | 1,500 | 1,500 |
| Richardson Refining Co., Big Spring | 6,000 | 4,000 | 4,300 |
| Rio Grande Oil Co., El Paso | 6,000 | 3,000 | 3,000 |
| San Angelo Refining Co., San Angelo | 2,000 | 400 | 300 |
| Sweetwater Oil & Refining Co., Sweetwater | 2,000 | 250 | 250 |
| The Texas Company, San Antonio | 3,000 | 2,500 | 2,500 |
| The Texas Company, El Paso | 1,500 | 1,000 | 1,000 |
| Tonkawa Petroleum Co., Pyote | 5,000 | 1,900 | 1,500 |
| Texas Mexican Oil & Refining Co., Laredo | 1,000 | 200 | 200 |
| Texas Petroleum Products Co., Somerset | 1,500 | 800 | 800 |
| Wickett Refining Co., Wickett | 2,500 | 300 | †300 |
| Total | 143,000 | 75,650 | 75,350 |

*Shut down. †Will also run 670 bbls. tops daily. ‡Crude stills shut down since first of month. To resume operations January 1.

**REFINERY OPERATIONS IN NORTH LOUISIANA**

(Plants which have been in operation during the past year)

| Name and address— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Bayou State Refining Co., Hosston | 700 | 500 | 500 |
| Crystal Oil Refining Corp., Shreveport | 14,000 | 4,500 | 5,300 |
| Dixie Oil Co., Superior | 3,000 | 3,000 | 4,000 |
| Louisiana Oil Refining Co., Shreveport, Bossier | 24,000 | 17,000 | 15,500 |
| Shreveport, El Dorado Pipe Line Co., Shreveport | 10,000 | 9,000 | 9,000 |
| The Texas Company, Shreveport | 7,000 | 6,000 | 6,000 |
| Total | 58,700 | 40,000 | 40,300 |

**REFINERY OPERATIONS IN ARKANSAS**

(Plants which have been in operation during the past year)

| Name and address— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| James B. Berry & Sons Co., Waterloo | 2,000 | 500 | 700 |
| Henry H. Cross Co., Smackover | 6,000 | 5,100 | 5,200 |
| Houston Oil Co., Camden | 3,000 | (*) | (*) |
| Kettle Creek Refining Co., Pearson | 5,000 | 2,600 | 2,600 |
| Lion Oil & Refining Co., El Dorado | 12,000 | 8,000 | 9,500 |
| Macmillan Petroleum Products Co., El Dorado | 1,800 | 1,550 | 1,500 |
| Ouachita Valley Refining Co., El Dorado | 2,000 | 850 | 1,000 |
| Root Refining Co., El Dorado | 10,000 | 8,000 | 8,000 |
| Simms Oil Co., Smackover | 3,000 | 2,300 | 2,500 |
| Total | 44,800 | 28,900 | 31,000 |

The still gas recovery and stabilization plants are largely designed to resist hydrogen sulphide in vapor and condensates. The thickness of the absorber may be increased by one-fourth inch, and fractionating bubble caps may contain small percentages of nickel, up to 1.5 per cent, to decrease mechanical breakage in handling and cleaning—(this applies likewise to bubble caps and cast trays in crude still fractionating towers).

Tubular equipment for such plants is best made with Admiralty tubes and naval bronze tube sheets.

Floats and level controls of chromium plated steel working parts seem desirable.

Gas lines have for years been made of Class A or B cast iron, sand moulded; although one refinery reports the installation of centrifugal cast iron pipe in 6-inch and 16-inch sizes for a distance of 2,000 feet on an underground location in use for stripped gas at 20 pounds pressure, and for raw still gas at 5 pounds pressure, respectively. It is hoped that, corroborating laboratory tests on acids, the denser, more uniform and cleaner cast iron made in this way will have a longer life than sand moulded cast iron. This pipe is made up mostly with poured lead in bell and spigot joints, with the usual flanged and bolted joints at turns, offsets, and valves.

In acid sludge disposal it is customary to pump the liquid sludges to fuel burners at boiler on stills, and to use red brass in heaters to resist the diluted sulphuric acids. Several refineries report the use of copper silicon alloy tubes and shells, containing Cu. 95 to 96 per cent, Si. 3 to 4 per cent, Mn. 1 to 1.2 per cent. The cost per pound is greater than red brass, but on account of greater strength less weight is required and less maintenance is expected.

Fire foam tanks and lines have required no special protection except for the aluminum sulphate (A) solution, where lead-lined steel tanks seem preferred to wood, and for which rubber-lined steel tanks are being tried. The pump suction line from these tanks and valves is usually brass, as is the liquid end for this solution.

Throughout the refinery the regulating and control valves, and throttle and stop valves on hot oil and vapor lines, are having inside parts furnished of chromium alloy steel of tough, machinable grade. Attention is being given to making valve bodies for forged steel valves of 18-8 chrome nickel steel, with integral flanges.

The use of seamless pipe and tubing on all hot oil and vapor lines, regardless of pressure, and on high pressure cold gas lines, is finding favor over lapwelded pipe, extra heavy weight, on account of more uniform corrosion resistance.

## PATIENCE REQUIRED IF OBJECTIVE IS REACHED

(Continued from Page 41)

should be, and this effort is, a co-operative march of a great army towards a worthy objective.

7. Don't be foxy. You may be smart enough to comply technically with certain rules and defeat their spirit. You may think you are making money by this, and you may actually do so for a short time, but you not only injure the industry but you brand yourself.

8. Use a little detachment in looking at your own particular problems, and consider the other fellow's, not just because you are an altruist but because you are intelligent. When you meet him be as quick to realize the necessities and difficulties of his position as you are to urge upon him your own complaints.

9. It seems to me the most natural thing in the world for a man to ask that he should be able to make exceptions to particular provisions in the code. It is natural to ask for anything that attracts our fancy or excites our cupidity. To expect to get it is another thing. There is no marketer, whether corporate or individual, that is in precisely the same position as any other marketer, and if the principle of exceptions were to prevail there would not be a single clause left in the code that some one was not violating. You have a perfect right to advocate changes in the provisions of the code, but do not make yourself ridiculous by publicly asking that you be made teacher's pet.

**Public Viewpoint**

10. Let everybody keep in mind—this means majors and minors, producers, refiners, all classes of distributors—that a powerful body of public opinion is pretty thoroughly disgusted with the industry's incapacity, or unwillingness, to solve its own problems, to clean its own house, to stabilize its business conditions. Down to the Dissolution Decree of 1911, there had been a long period of sharp public hostility to the industry's methods. After that decree a change came about, and for a considerable period the industry was permitted a pretty free and to work out its own salvation. Yet more recently, due to excesses of production and a persistent public fear that supplies were sooner or later liable to be dangerously depleted, there has been a revival of public apprehension about the industry's conduct, and of suspicion that its larger policies, or lack of policies, have not been constant with an adequate conception of the broadest public interest. The petroleum problem is a world problem, and you cannot make a comprehensive survey of it from a seat astride the gable of a filling station. It's up to the industry to get that comprehensive view; if it doesn't do it pretty soon there will be real danger of a new epoch of governmental, possibly even international, interference and regulation, with almost certainly disastrous results to many of us.

We cannot be catapulated to our goal, but we are, step by step, getting closer to it every day. Be prepared to bear your part of the burden and you will reap your share of the return. Do not scold, do not whine, but have faith, courage, persistence and charity, and above all do not quit.

## WEST TEXAS FIELDS

(Continued from Page 67)

of Section 14, Block 33, Township 2-S, topped the lime at 2,070 feet, topped the pay at 2,150 feet and was drilled to a total depth of 2,320 feet and had an initial production of 70 bbls. hourly. Kirby Petroleum Co.'s No. 2 Baker, located 990 feet from north and 330 feet west of Section 23, Block 33, Township 2-S, topped the lime at 2,040 feet, topped the pay at 2,160 feet, was drilled to a total depth of 2,281 feet and had an initial production of 500 bbls. Shell Petroleum Corp.'s No. 1 Coffee topped the pay at 2,098 feet, was drilled to a total depth of 2,239 feet, plugged back to 2,137 feet and had an initial production of 1,154 bbls.

**Howard County**

Continental Oil Co.'s No. 3-F Clay, located 250 feet from north and 660 feet east of Section 137, Block 29, topped the pay at 2,954 feet, was drilled to a total depth of 2,998½ feet, was plugged back to 2,989 feet and had an initial production of 99 bbls. Moody Oil Co.'s No. 29-B Roberts, located 330 feet from north and 1,650 feet west of Section 137, Block 29, topped the pay at 1,881 feet, was drilled to a total depth of 1,911 feet and had an initial production of 25 bbls. Ward Oil Co.'s No. 17 Roberts, located 1,897 feet from south and 1,878 feet west of Section 137, Block 29, had an initial production of 50 bbls. at 1,303-90 feet.

**Irion County**

Banner Oil Co.'s No. 1 Nutt topped the pay at 1,359 feet, was drilled to a total depth of 1,400 feet, was plugged back to 1,365 feet and was dry and abandoned.

**Loving County**

Lockhart Co.'s No. 4 Hubbard, located 660 feet northeast and 330 feet northwest of Section 83, Block 33, H.&T.C. Survey, topped the salt at 710 feet, topped the lime at 4,186 feet, topped the pay at 4,194 feet, was drilled to a total depth of 4,236 feet, was shot with 120 quarts at 4,194-4,236 feet and had an initial production of 72 bbls. the first 15 hours.

**Reeves County**

Mac Best's No. 1 McKinney, located 400 feet north and 1,030 feet east of Section 26, Block C-17, was dry and abandoned at 1,160 feet.

**Schleicher County**

Duffey and others' No. 1 Tisdale, located 3,630 feet from south and 150 feet west of Section 1,499, was dry and abandoned at 3,500 feet.

**Terrell County**

Milham's No. 1 Bassett, located CNL of Section 76, Block Y, was dry and abandoned at 5,400 feet.

**Sutton County**

L. G. Priest's No. 1 Allison, located Section 52, Block 9, was dry and abandoned at 4,020 feet.

**Pecos County**

Continental Oil Co.'s No. 4-A University, located 330 feet from north and west of Section 6, Block 17, had an initial production of 85 bbls. at 960-70 feet. Landreth Production Co.'s No. 1-D University, located 990 feet from south and west of Section 31, Block 16, had an initial production of 42 bbls. at 962,-1,695 feet. Landreth Production Co.'s No. 1-F University, located 1,650 feet from south, 2,310 feet from west of Section 31, Block 16, had an initial production of 675 bbls. at 964-88 feet. McMan Oil & Gas Co.'s No. 10-C Smith, located 1,843 feet from north, 1,815 feet east, had an initial production of 250 bbls. at 1,591-1,615 feet. Mid-Kansas Oil & Gas Co.'s No. 32-A Yates, located Section 32, Block 194, had an initial production of 2,030 bbls. at 1,425-1,515 feet. Schumaker's No. 1 Williams, located 330 feet south and 2,640 feet east of Section 1, Block 117, was dry and abandoned at 2,504 feet. Taylor-Link's No. 8 University, located 2,310 feet from east and 330 feet south of Section 31, Block 16, had an initial production of 120 bbls. at 1,649-1,675 feet. World Oil Co.'s No. 1 University, located 330 feet from north and 1,650 feet east of Section 31, Block 16, had an initial production of 55 bbls. at 1,630-65 feet. Phillips Petroleum Corp.'s No. 4 Ramsey was drilled to a total depth of 1,715 feet, was plugged back to 1,697 feet, topped the pay at 1,595 feet and had an initial production of 96 bbls.

**PIPE LINE RUNS**
**November 20 to 27**

**Runs Through Trunk Lines**

| | Last period |
|---|---|
| Atlantic P. L. Co., Port Arthur | 37,000 |
| Gulf P. L. Co., to coast via Ranger | 37,089 |
| Humble P. L. Co., Comyn, Tex. | 38,030 |
| Humble P. L. Co., Ingleside | 42,204 |
| Illinois P. L. Co., Del Rio, Tex. | 46,959 |
| Magnolia P. L. Co., DeLeon, Tex. | 23,133 |
| Pasotex P. L. Co., El Paso, Tex. | 7,108 |
| Shell P. L. Co., Healdton, Okla. | 40,340 |
| Shell P. L. Co., Houston | 19,875 |
| The Texas Co., Houston, Tex. | 18,587 |
| Total | 310,325 |

**Tank Car Shipments**

| | |
|---|---|
| Reagan Co. Purch. Co., McCamey | 656 |
| Thomas & Brann, Grant City | 110 |
| Orient Co., McCamey | 100 |
| American Pet. Co., Pyote | None |
| Southern Crude O. P. Co., Wickett | 16,428 |
| Total | 17,294 |

**Runs to West Texas Refineries**

| | |
|---|---|
| Amarillo Prod. Co., Pyote | None |
| Bluebonnett Ref. Co., Wickett | 3,261 |
| Burford Ref. Co., Pecos | 4,629 |
| Col-Tex Ref. Co., Colorado | 7,500 |
| Cosden Ref. Co., Big Spring | 7,892 |
| Great Western Ref. Co., Big Spring | 3,307 |
| Humble O. & R. Co., McCamey | None |
| Mid-Tex Ref. Co., Midland | None |
| Tonkawa Ref. Co., Pyote | 2,003 |
| Big Spring Ref. Co., Big Spring | 1,662 |
| Richardson Ref. Co., Big Spring | 4,746 |
| Wickett Ref. Co., Pyote | 238 |
| Total | 35,238 |

**Summary**

| | Last period | This period |
|---|---|---|
| Pipe line runs through trunk lines | 316,222 | 310,325 |
| Tank car shipments | 13,147 | 17,294 |
| Runs to West Texas refineries | 36,485 | 35,238 |
| Total daily distribution | 365,854 | 362,857 |
| Total daily production | 356,005 | 354,551 |
| Dly. aver. from storage | 9,849 | 8,306 |

**Ward County**

Atlantic-Delmar's No. 5 Hayzlett, located Section 17, Block 5, had an initial production of 174 bbls. in 17 hours after having been shot with 220 quarts at 2,460-2,500 feet. Gulf Production Co.'s No. 2 Hutchins, located 330 feet north and east of Section 7, Block O, had an initial production of 190 bbls. daily at 2,490-3,274 feet.

## INVOLVED TETRAETHYL PROCESSES IN SUIT

(Continued from Page 132)

was "to remain in full force and effect until thirty days after defendant should have given notice to said American Research Laboratories, Inc., that a more economical process for tetraethyl lead manufacture was available to defendant, and that defendant should, in giving said notice, fairly present to the American Research Laboratories, Inc., evidence that such other process was more economical, and was not based upon the process of said American Research Laboratories, Inc., or upon information disclosed to said defendant by said American Research Laboratories, Inc., and provided that said American Research Laboratories, Inc., "could not within said thirty days make its process, or another of equal economy, available to defendant and that should such other process, after notice and evidence as aforesaid, at the end of thirty days still be more economical to the defendant, then that in that event this agreement should terminate upon payment by the defendant of the balance due said American Research Laboratories, Inc." On January 15, 1929, the American Research Laboratories, Inc., assigned to the General Research Corp. all its rights, claims and demands against the defendant arising out of and under the contract between the plaintiff and the defendant.

**Allege Contract Breach**

The complaint says that the American Research Laboratories, Inc., and the plaintiff, its assignee, have in all ways strictly complied with and fully performed every obligation and duty imposed upon them thereby; that the defendant has received the benefit of complete performance on the part of the American Research Laboratories, Inc., and the plaintiff, but has failed, refused and neglected and continues to so fail, refuse and neglect to comply with the terms of the said contract. After setting forth that the contract is still in force and effect, it prays for a judgment for $10,000,000 with interest at the rate of 7 per cent and the costs of the action.

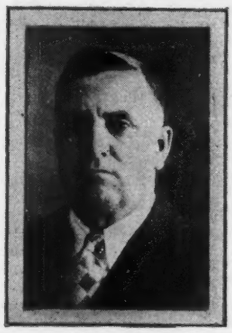
Carl L. Modesitt, who was one of the principals in the exploration, development and production of potash salts in western Nebraska in 1910-20, is president of the General Research Corp. C. B. Huff, mayor of Sioux City, Iowa, and J. N. Huff, of Denver, are other officers. A. X. Erickson and Emery L. O'Connell, attorneys of Denver, are counsel for the plaintiff and Clarence Spier, of Omaha, filed the suit. Attorney Erickson stated that the action was brought in a state court as there is no diversity of citizenship, both plaintiff and defendant companies being incorporated under the laws of Delaware.

While the complaint is brief in text, the counsel for the General Research Corp. has an extensive exhibit of documents, advertisements, etc., tracing the development and use of tetraethyl lead. This product, Mr. Erickson stated, has been known and in use for many years, dating back to 1850, but its production involved serious dangers in its manufacture. D. K. Proffitt and J. G. Sharron, Colorado chemists, are credited with discovering the process under which the American Research Laboratories, Inc., was producing and marketing tetraethyl lead in the Rocky Mountain states prior to the signing of the contract with the Ethyl Gasoline Corp. This process, it is claimed, eliminated the danger in manufacture and was 50 per cent more efficient than the older process. The contract with the Ethyl Gasoline Corp., it was stated, was signed by President E. W. Webb, and Secretary Arthur P. Mittnacht. The plaintiff does not ask for an injunction but only for an accounting for royalties.

# Winfield, Kansas

Development of oil properties in Cowley County and eastern Sumner County, Kansas, is centered at Winfield. This area being made up of several separate pools, among them being such well-known pools as the Oxford, Churchill, Rainbow Bend, Winfield-New Salem, Rock, Clark, Eastman, Slick, Graham and some scattered pools.

The first commercial producer in Cowley County was the Phillips Petroleum Company's No. 1 Falls City Land & Cattle Co., located in the N. E. ¼ of Sec. 17-35-7. It was first completed as a gasser on May 1, 1917, with a flow of 4,500,000 feet per day. On being deepened to 2,011-23 feet an oil sand was found which made a 50-bbl. well and opened a considerable pool.



CHAS. HOLTZMAN
Store Manager at Winfield

With the bringing in of its No. 1 Churchill in Sec. 15-31-2, Sumner County, by the Roxana Petroleum Corporation (now Shell Petroleum Corporation) they opened considerable activity in this county. This discovery well produced 200 bbls. initial from the Stalnaker sand found at 1,800 feet, which sand was found in this test on July 14, 1926.

Yearly production in Cowley County: 1924, 2,266,360 bbls.; 1925, 7,038,874 bbls.; 1926, 3,943,062 bbls.; 1927, 3,097,591 bbls.; 1928, 2,284,247 bbls.; 1929 (first 6 months only), 954,206 bbls.

Sumner County produced in 1926, 1,248,088 bbls.; in 1927, 6,708,275 bbls.; 1928, 7,787,738 bbls.; 1929 (first 6 months only), 2,363,936 bbls.

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## Need of Continued Proration Will Be Discussed Thursday

Umpire Ray M. Collins, in charge of the proration of crude oil runs in the flush fields of Oklahoma, has made a detailed report of the results of proration in the Seminole fields in November. The report does not include East Earlsboro, East Little River, Sasakwa or the Wilcox sand area in the Allen Field.

The report summarized shows a total potential production in 12 pools of 306,932 bbls. per day and an actual production of 242,289 bbls. per day. This average is below the allowed production, which was 246,472 bbls. per day. Producers in the pools covered by the report were under orders of the Oklahoma Corporation Commission to curtail 20 per cent of their potential production in the interest of conservation. According to the report the curtailment amounted to a shade over 21 per cent, indicating the success of the umpire's efforts and the willingness of producers to co-operate.

A meeting of producers will be held in Tulsa, December 12, to take action on the question of asking the corporation commission for an order to extend proration in all the flush fields of the State for the first three months of 1930. The meeting has been called for 10:30 a.m., in the assembly room of the Exchange National Bank Building.

It is suggested that Oklahoma City and East Earlsboro be prorated 40 per cent in January and February and 50 per cent in March; and Seminole and other flush pools 20 per cent throughout the three months.

According to the estimates of the committees headed by C. C. Herndon and W. C. Franklin, this would give Oklahoma a production of 641,600 bbls. a day in January; 670,000 bbls. a day in February and 671,600 bbls. a day in March.

The committees estimate that in March the potential production of Oklahoma will have risen to 922,000 bbls. per days.

### CHANGES IN MILMAC

Dr. J. H. Miller and Robert H. Wood have resigned from the board of directors of the Milmac Oil Co., and their places have been filled by the election of F. A. Douglass of Fort Worth, Tex., and O. K. Detrick of Okmulgee, Okla. Paul McCune has been elected president in the place of Max W. Ball, who becomes chairman of the board. The new officers are Max W. Ball, chairman; Paul McCune, president; F. L. Michaels, Jr., vice president; O. B. Swanson, secretary and treasurer, and Winifred E. Drach, assistant secretary-treasurer. The directors as newly constituted are Max W. Ball, Paul McCune, F. L. Michaels, Jr., O. B. Swanson, F. A. Douglass, H. C. Detrick and O. K. Detrick.

The advisory committee, which passes on all matters of policy relating to the purchase and sale of properties, is now made up of W. E. Wrather, geologist and engineer, of Dallas, Tex., Paul McCune and Max W. Ball. The company will move its executive offices from Tulsa to Fort Worth on January 1, but will continue to have offices in the Exchange Bank Building, Tulsa, and the First National Bank Building, Denver.

### MAY LEAVE COLOMBIA

Some American oil companies operating in Colombia, disappointed over the failure of the government of Colombia to give them relief from petroleum laws, are considering the advisability of withdrawing unless the government's attitude undergoes a decided change. As the next session of the Colombian congress will not be held until next summer no remedial legislation would be possible at the earliest until that time. In the meantime Colombia will hold a national election which will choose a new administration whose attitude toward foreign interests is, of course, not known.

## MOUNT PLEASANT CRUDE PRICE CUT; BUT THREE MICHIGAN COMPLETIONS

By Special Correspondent

MUSKEGON, Mich., Dec. 9.—A drop in the price of crude oil produced in the Mount Pleasant Field of Central Michigan from $1.70 to $1.50 a barrel has been announced by the Pure Oil Co., only purchaser of crude in the field. The last price change was an increase from $1.50 to $1.70, effective June 3, 1929. No reason for the drop was stated but local operators are of opinion it was induced by a local situation not in line with the oil industry as a whole. Independent producers in the field recently formed a $100,000 company to build and operate a pipe line or refinery under the name of the Peninsula Producing & Refining Co. Several Muskegon pipe line operators and refiners also have considered entering the Mount Pleasant Field as crude oil purchasers. The Pure Oil Co. controls about 85 per cent of the production of the field and the independents control the remaining 15 per cent. Average daily production is about 8,000 bbls.

Two small oil wells in the Mount Pleasant Field and one dry gasser in the Muskegon Field were the only completions of the week. The Sias Oil & Gas Co. and the Ohio Producing & Refining Co. are joint owners of a new 100-bbl. well in the Dundee formation, No. 2 Evan S. Weidman, NE SW Section 12-14-3, Chippewa Township, Isabella County. The well is 3,594 feet deep. The other new producer is the Pure Oil Co.'s No. 6 J. Fox, SE NW Section 13-14-3, Chippewa Township, Isabella County, 75 bbls. initial in the Dundee. The bottom is at 3,594 feet.

Glen M. Reem's Nos. 3-A and 4-B, both in Section 12-14-3, Chippewa Township, on Pure Oil Co. leases, were drilling in the Dundee but had not been completed.

The Geneva Oil & Gas Corp.'s No. 1 Henry, SW SW Section 33-15-2, Geneva Township, Midland County, was dry at 3,620 feet, where water was struck in the Dundee.

No new locations were made but new permits were issued for three wildcats in Clare, Isabella and Gratiot Counties near Mount Pleasant Field.

**Muskegon Field**

One gas well estimated about 1,000,000 feet in the lower Traverse was the only new completion in the Muskegon Field. It is Bradley and Bradley's No. 1 T. Kooi, SW NE Section 8-10-16. Pay sands were struck at 1,876 feet. It had been an upper Traverse oil producer.

**Clare County**

The Clare Development Co. will drill on the Fred Hubel farm in the south part of the S half of Section 28-17n-4w, Grant Township, in which a 4,000,000-foot gas well was struck by the McKay-Mercier interest of Detroit in the Marshall formation at about 1,400 feet. I. E. Hampton of Clare is president of the company which controls about 1,400 acres.

James A. McKay and J. A. Mercier of Detroit took out a permit for No. 2 McKay, NE NW NW Section 6-17n-4w, Grant Township, Clare County.

H. E. Pollock's No. 1 Anna Bowman has been located on the S half of the NE of Section 27-16n-4w, Vernon Township, Isabella County.

S. B. Ridenour and F. L. Snyder have taken out a permit for No. 1 Nelson, NE NE Section 25-12n-4w, Seville Township, Gratiot County.

**Newaygo County**

The Hervey Syndicate's No. 1 Baumgartner, NE NE Section 33-12-13, Garfield Township, is nearing the upper Traverse formation at more than 2,000 feet. The Pennsylvania Oil & Gas Co.'s No. 1 Miller, SE SE Section 33-14-11, Goodwell Township, is at 3,050 feet. It had one of the best shows in the Traverse in Newaygo County at 2,797-98 feet. The Atlantic Exploration Co.'s No. 1 Brydges, NW SW Section 12-11-13. Ashland Township, is at more than 2,600 feet after a show in the Traverse at 2,400 feet.

**Wildcats North of Muskegon**

The Muskegon Oil Corp. has announced the location of a wildcat in Clearwater Township, Kalkasha County, in the NW NW, Section 16-27n-5w. A rig is being moved in. The location was determined by H. D. Crider on the basis of five completed structure tests.

Operations on four Lake County wildcats, one Manistee County test and one proposed Mason County test have been suspended for the winter.

**Show in Cass County**

A fair show of gas and oil has been struck in Blair and Miller's No. 1 Charles Stutsman, wildcat in Porter Township, Cass County, according to Royal R. Miller. The well is about 3 miles north of the Indiana-Michigan line and about 15 miles from Elkhart, Ind. The show was struck at about 720 feet in the lower Traverse or Dundee. It was drilling at 47 feet in the lime when gas was struck. It is expected to resume drilling at 850 feet. It is in the NE NW, Section 32-7s-13w, Porter Township.

The Blatchford Oil & Gas Co.'s No. 1 Blatchford, NW SW, Section 11-3s-17w, Watervliet Township, Barrien County, will be plugged as dry in the Dundee at 1,850 feet.

V. M. Voorhees, Muskegon contractor, has spudded in for the Barrien Petroleum Syndicate on No. 1 Franz, SE SE, Section 3-7s-16w, Howard Township, Cass County, near the Michigan-Indiana line.

In Muskegon County's only wildcat, Buchanan and Frye's No. 1 Fruitvale, SW SE, Section 6-12n-16w, Blue Lake Township, a show of oil and gas was drowned out by water struck at about 2,238 feet and drilling was suspended at 2,250 feet.

**Ottawa County Deep Tests**

The Michigan Petroleum Co.'s No. 1 C. E. Moe in which a good show of gas was struck in the Cincinnati series at 4,776 feet has a caving hole and must clean out about 1,200 feet of hole. It is located SE SE, Section 6-9-13, Chester Township. Operators plan to drill the well to the Trenton limestone which they expect to encounter within 200 to 500 additional feet of drilling.

The Wright Oil Co.'s No. 1 Joseph Kluting, SW NW, Section 10-8-13, Wright Township, Ottawa County, has resumed drilling after being shut down at 4,735 feet for several weeks. It is nearing a depth of 4,800 feet as one of the deepest wells ever drilled in the State.

Thompson Brothers lost their second rig in the Muskegon Field when an unexpected pocket of gas was struck in the lower Traverse on the Grand Rapids Oil Co.'s No. 1 Smeltekop, NW SW, Section 5-10-16, Muskegon Township.

## MONTHLY OUTPUT MORE THAN 200,000,000 GALLONS

(Continued from Page 131)

to Gulf Coast and East Coast refiners during October and as a result Oklahoma stocks decreased from 10,360,000 gallons on September 30 to 6,802,000 gallons on October 31. Texas stocks decreased from 11,355,000 gallons to 7,327,000 gallons.

**OUTPUT OF MOTOR FUEL (Thousands of gallons)**

| | Oct., 1929 | Sept., 1929 | Oct., 1928 | Jan.-Oct., 1929 |
|---|---|---|---|---|
| Gasoline produced at refineries*† | 1,665,800 | 1,560,400 | 1,445,400 | 15,110,000 |
| Natural gasoline blended at plants east of California | 2,000 | 2,500 | 1,900 | 24,000 |
| Natural gasoline sold direct to jobbers | 2,100 | 2,100 | 2,100 | 21,000 |
| Benzol production‡ | 11,100 | 10,600 | 10,300 | 108,000 |
| Total motor fuel produced | 1,681,000 | 1,575,600 | 1,459,700 | 15,263,000 |
| Daily average | 54,230 | 52,520 | 47,090 | 50,210 |
| *Includes natural gasoline blended at refineries | 184,900 | 162,800 | 131,900 | 1,491,000 |
| †Includes natural gasoline run through refinery pipe lines in California | 8,700 | 9,300 | 5,600 | 86,000 |

‡Estimated with production of by-product coke as a basis.

**DEPARTMENT OF COMMERCE, BUREAU OF MINES, NATURAL GASOLINE, OCTOBER, 1929**

(Thousands of gallons)

| | Natural gasoline | | | | | | Blended motor fuel Oct., 1929 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Production | | | | Stocks end of month | | Natural gasoline used | Naphtha or other oils used | Stocks end of month |
| | Oct., 1929 | Sept., 1929 | Oct., 1928 | Jan.-Oct., 1929 | Oct., 1929 | Sept., 1929 | | | |
| Appalachian | 8,900 | 6,700 | 7,900 | 81,900 | 2,314 | 2,173 | 83 | 110 | 222 |
| Ill., Ky., etc. | 1,300 | 900 | 1,200 | 11,100 | 269 | 249 | .... | 1 | 9 |
| Oklahoma | 59,400 | 59,200 | 54,100 | 566,400 | 6,802 | 10,360 | 1,255 | 1,380 | 388 |
| Seminole, etc. | 30,400 | 31,700 | 23,700 | 292,300 | 2,220 | 2,631 | 525 | 785 | 200 |
| Osage County | 7,600 | 6,900 | 8,200 | 69,400 | 538 | 3,363 | 5 | 2 | 3 |
| Rest of State | 21,400 | 20,600 | 22,200 | 204,700 | 4,044 | 4,366 | 725 | 593 | 185 |
| Kansas | 2,800 | 2,700 | 3,000 | 27,800 | 588 | 577 | 29 | 1 | 7 |
| Texas | 40,700 | 37,300 | 30,400 | 341,400 | 7,327 | 11,355 | 341 | 606 | 190 |
| Panhandle | 19,300 | 17,800 | 11,600 | 142,900 | 3,901 | 7,986 | 188 | 348 | 108 |
| North Texas | 3,900 | 3,800 | 3,700 | 40,000 | 969 | 733 | 22 | 22 | 33 |
| West Central | 13,800 | 12,200 | 13,700 | 126,400 | 2,135 | 2,253 | 79 | 161 | 38 |
| Rest of State | 3,700 | 3,500 | 1,400 | 32,100 | 322 | 383 | 52 | 75 | 11 |
| Louisiana | 6,300 | 5,200 | 4,800 | 51,000 | 704 | 725 | 17 | 20 | 13 |
| Arkansas | 2,900 | 2,800 | 2,700 | 27,000 | 270 | 252 | 242 | 310 | 23 |
| Rocky Mountain | 4,400 | 4,300 | 4,200 | 39,500 | 594 | 628 | .... | .... | .... |
| California | 79,600 | 73,000 | 48,400 | 672,900 | 1,721 | 1,443 | .... | .... | .... |
| Long Beach | 20,100 | 19,300 | 18,400 | 196,900 | .... | .... | .... | .... | .... |
| Ventura Avenue | 7,100 | 6,800 | 5,800 | 64,900 | .... | .... | .... | .... | .... |
| Seal Beach | 4,300 | 2,800 | 2,400 | 34,700 | .... | .... | .... | .... | .... |
| Huntington Beach | 3,700 | 3,400 | 4,100 | 34,600 | .... | .... | .... | .... | .... |
| Santa Fe Springs | 36,200 | 24,700 | 2,900 | 184,800 | .... | .... | .... | .... | .... |
| Rest of State | 18,200 | 16,000 | 14,800 | 157,000 | .... | .... | .... | .... | .... |
| Total (gals.) | 206,300 | 192,100 | 156,700 | 1,819,000 | 20,589 | 27,762 | 1,967 | 2,428 | 852 |
| Daily average | 6,650 | 6,400 | 5,050 | 5,980 | .... | .... | .... | .... | .... |
| Total (bbls.) | 4,912 | 4,574 | 3,731 | 43,310 | 490 | 661 | 47 | 58 | 20 |
| Daily average | 158 | 152 | 120 | 1,420 | .... | .... | .... | .... | .... |

## ASK ENGINEERING COURSE

FORT WORTH, Tex., Dec. 7.—If recommendations by an investigating committee are acted upon favorably the University of Texas will probably have a department of petroleum production engineering established in the College of Engineering, and a professorship of petroleum production engineering will be created, the appointee acting as chairman of the department. Recommendations have been made urging the president of the university and board of regents to make provision for instruction in petroleum production engineering during the second semester of the present year.

Members of the committee which investigated the situation were Dr. E. P. Schoch, director of the Bureau of Industrial Chemistry; Dr. H. T. Parlin, dean of the College of Arts and Sciences; Dr. E. H. Sellards, associate director of the Bureau of Economic Geology; Dean T. U. Taylor, of the College of Engineering; and Dr. F. L. Whitney, professor of geology and paleontology.

## DETERMINE PROPANE AND BUTANE CONTENT

(Continued from Page 131)

natural gases, as some have been examined that show more hexane than pentane present. This point was checked up rather carefully and is believed to be correct. In work done at the University of Kansas heptane is the highest hydrocarbon that has been determined in natural gases, but traces of octane have been detected.

It will be noted that in each case the gasoline not absorbed, which may be considered as the pentane fraction left in the residue gas, amounts to about 0.2 per cent, or slightly less than 0.1 gallon per 1,000 feet of gas. This seems to be about the limit of absorbability in practice, though no doubt it could be diminished by using larger quantities of absorbing oil. Residue gases have been examined that contained as much as 0.9 per cent of pentane, which shows a very poor recovery.

The quantitative connection between the volume of the raw gas and the residue gas is not very certain from the data usually obtained; however, where there is a considerable residue in a gas it may be assumed that this is only slightly affected in the absorbing process. With this assumption it has calculated in a number of cases that the total gas absorbed will be slightly more than twice the pentane and higher hydrocarbons actually absorbed. This value checks fairly well with the measured volumes when it has been possible to obtain such data.

**ANALYSES OF SOME NATURAL GASOLINE GASES**

(All results calculated air-free)

| Constituent— | Gas A * | Gas A † | Gas B * | Gas B † | Gas C * | Gas C † |
|---|---|---|---|---|---|---|
| **Fractionation Analyses** | % | % | % | % | % | % |
| $CH_4$ | 85.8 | 86.1 | 65.8 | 70.2 | 41.4 | 46.1 |
| $C_2H_6$ | 6.5 | 7.4 | 10.5 | 11.1 | 24.4 | 28.7 |
| $C_3H_8$ | 3.6 | 3.0 | 7.6 | 6.4 | 16.7 | 15.5 |
| $C_4H_{10}$ | 1.2 | 0.9 | 3.6 | 1.9 | 6.8 | 4.3 |
| $C_5H_{12}$ | 0.5 | 0.2 | 1.6+ | 0.2+ | 4.9 | 0.2 |
| $C_6H_{14}$ | Trace | ... | 1.0 | Trace | 1.2 | Trace |
| $C_7H_{16}$ | ... | ... | Trace | ... | 0.1 | ... |
| $CO_2$ | 0.3 | 0.2 | 0.7 | 0.5 | 0.7 | 0.7 |
| Residue | 2.1 | 2.2 | 9.1 | 9.7 | 3.8 | 4.5 |
| B.t.u. | 1131 | 1113 | 1270 | 1138 | 1755 | 1509 |
| | Lbs. per 1,000 ft. | | Lbs. per 1,000 ft. | | Lbs. per 1,000 ft. | |
| $C_3H_8$ | 4.19 | 3.49 | 8.85 | 7.45 | 19.43 | 18.03 |
| $C_4H_{10}$ | 1.84 | 1.38 | 5.52 | 2.92 | 10.44 | 6.60 |
| | Gals. per 1,000 ft. | | Gals. per 1,000 ft. | | Gals. per 1,000 ft. | |
| $C_5H_{12}$ | 0.183 | 0.073 | 0.584 | 0.088 | 1.79 | 0.078 |
| $C_6H_{14}$ | ... | ... | 0.41 | Tr'ce | 0.494 | Tr'ce |
| $C_7H_{16}$ | ... | ... | Trace | ... | 0.043 | ... |
| **Combustion Analyses** | % | % | % | % | % | % |
| $CH_4$ | 78.05 | 78.80 | 43.45 | 58.40 | ... | 20.97 |
| $C_2H_6$ | 19.58 | 18.64 | 46.50 | 31.60 | 88.10 | 74.20 |
| $C_3H_8$ | ... | ... | ... | ... | 7.96 | ... |
| $CO_2$ | 0.26 | 0.23 | 0.69 | 0.44 | 0.76 | 0.74 |
| Residue | 2.11 | 2.33 | 9.36 | 9.56 | 3.18 | 4.09 |
| B.t.u. | 1133 | 1117 | 1259 | 1148 | 1765 | 1519 |
| **Salable Gasoline Recovered** | | | | | | |
| Gals. per 1,000 ft. (abou.) | 0.1 | | 0.9 | | 2.2 | |
| Shrinkage pct. (abou.) | 1 | | 6 | | 14 | |

*Raw. †Treated.

### Methods of Analysis

Details of the method used in the analyses would require considerable space, but in a general way the published methods, with numerous modifications, were followed. The gases were fractionated by means of liquid air at different temperatures and as much of the work was a check on modifications of the apparatus and manipulation as well as on the gases, the fractions were analyzed by combustion methods. To eliminate variations in molecular volumes and any absorption of carbon dioxide after combustion, the higher fractions were calculated from the combustion data by combining the carbon dioxide and contraction and using this combined value with the oxygen consumed. This involves no additional manipulation, since there are no residues in these higher fractions. Three or four fractionations gave a rather pure product, but in practically all cases the combustion analyses indicated the presence of two hydrocarbons. For some reason the propane fraction seemed to be the easiest to obtain in a fairly pure condition.

## MAJOR COMPANIES ENLARGE TANKER FACILITIES IN MARKETING PROGRAM

NEW YORK, Dec. 9.—An extensive program of oil tanker construction, announced by several leading companies during the past few weeks, indicates that principal factors in the American oil industry are planning further expansion in their foreign marketing operations. Altogether, the amount of new tonnage announced within recent weeks has aggregated 176,500 tons by four leading United States oil companies, adding approximately 1,323,750 bbls. to the carrying capacity of their tanker fleets, and 70,000 tons by Imperial Oil Co., Ltd., adding approximately 525,000 bbls. to the carrying capacity of the Imperial fleet.

While the large volume of new tanker construction under way is believed to forecast further expansion in export operations, it is probable that considerable of this tonnage is being constructed for the purpose of moving South American and West Texas crudes to East Coast refineries, while some of the new tonnage will find its way into the inter-Coastal trade for moving California oil and refined products to the Atlantic Coast.

By the end of 1930, according to the present schedule, six new tankers of 16,000 and two of 18,000 deadweight tons each will be ready to transport their first cargoes for account of the Standard Oil Co. of New Jersey foreign and domestic subsidiaries. The placing of orders for four additional bulk oil carriers of approximately 13,500 deadweight tons each is now under consideration.

Not only does this represent the largest construction program undertaken at one time by the Standard Shipping Co., but the vessels will have added features tending to improve their efficiency over that of former tankers. Six of these vessels are building in European yards and two at the Federal Shipbuilding & Dry Dock Co., Kearny, N. J.

The foreign vessels will be 16,000 deadweight tons, twin screw, Diesel driven tankers, five of which will be constructed throughout from the same set of specifications, the sixth being of somewhat different design. Two are being built in England, one at the Furness Shipbuilding Co., Ltd. Yard, at Haverton, Hillon-Tees, and the other at the Palmers Shipbuilding & Iron Co., Ltd. plant at Hebburn-on-Tyne. Three are building in Germany, at the yards of the Gremer-Vulkan Schiffbau und Machinenfrabrik. Vegesack; Vereinigte Stahlwerke Aktiengesellschaft, Nordseewerke, Emden; and Fried-Krupp Aktiengesellschaft, Germaniawerft, Kiel-Gaarden. The sixth vessel is under construction at Cantiere Navale Triestino yard, Monfalcone, Italy.

### Tide Water Program

Tide Water Oil Co., through its subsidiary, the Tide Water Associated Transport Corp., has contracted with the Sun Shipbuilding & Dry Dock Co. for the construction of two tankers of approximately 13,000 tons each, to be completed early in the fall of 1930. The two vessels will be used in the company's business in Venezuela, Dutch West Indies, and the Argentine. Each will have capacity for 100,000 bbls. of crude oil or 115,000 bbls. of gasoline.

Union Oil Co. of California last week called for bids for the construction of two tank steamers, each to cost approximately $2,000,000, "and surpassing in design and general efficiency any oil carrier afloat." The two vessels are to be completed by December, 1930. Each will have cargo capacity of 105,000 bbls.

Standard Oil Co. of New York last week announced that it has placed contracts with the Sun Shipbuilding & Dry Dock Co. for the construction of two tankers of 13,500 tons each, one to be equipped with Diesel engines and the other to be powered by turbine engines. Imperial Oil Co. of Canada, a subsidiary of the Standard Oil Co. of New Jersey, has placed orders in British shipyards for seven tankers, five of which will be operated in the Great Lakes trade and two of which will be for coastwise traffic between American and Canadian ports.

The current wave of new tanker construction, it is believed here, is but the first step in a campaign of American oil companies to thoroughly modernize their tanker transport fleets to enable them to hold their own in competition with other nations. Many tankers now in service, it is explained, are not only too slow but are uneconomical in operation. In the case of the New Jersey company's new tanker construction, it is believed here, additions to its tanker fleet have been made necessary by its acquisition of Anglo-American Oil Co., Ltd., of Great Britain, one of the leading European distributors of American petroleum products.

The following table lists the number of tankers, total tonnage, and approximate carrying capacity of the tanker fleets of leading American oil companies:

| Company— | No. of tankers | Tons | Capacity bbls. |
|---|---|---|---|
| Asiatic Pet. Co. (Delaware) | 3 | 25,200 | 179,000 |
| Associated Oil Co. | 12 | 89,500 | 689,000 |
| Atlantic Ref. Co. | 19 | 168,000 | 1,157,000 |
| Beacon Transport | 3 | 30,400 | 209,400 |
| California Pet. S. S. Corp. | 6 | 65,800 | 453,500 |
| Cities Service Trans. | 7 | 70,000 | 482,500 |
| Galena Nav. Co. | 2 | 11,500 | 80,000 |
| Gulf Ref. Co. | 24 | 229,000 | 1,580,000 |
| Huasteca Pet. Co. | 1 | 2,400 | 6,500 |
| New England Oil S. S. Co. | 6 | 72,000 | 745,000 |
| Pan American Pet. & Transport Co. | 30 | 270,000 | 1,860,000 |
| Pet. Securities Co. | 2 | 21,200 | 145,000 |
| Pure Oil S. S. Co. | 3 | 33,000 | 227,000 |
| Richfield Oil Co. of Calif. | 3 | 48,000 | 332,000 |
| Sinclair Nav. Co. | 13 | 95,000 | 655,000 |
| Standard Oil Co. of Calif. | 21 | 202,500 | 1,398,000 |
| Standard Oil Co. of Indiana | 3 | 20,000 | 138,000 |
| Standard Shipping Co. | 41 | 494,000 | 3,400,500 |
| Standard Trans. Co. | 43 | 427,000 | 2,946,300 |
| Sun Oil Co. | 11 | 120,000 | 828,000 |
| The Texas Co. | 12 | 108,200 | 476,500 |
| The Texas S.S. Co. | 7 | 63,000 | 434,700 |
| Tide Water Associated Trans. Co. | 3 | 35,700 | 246,300 |
| Tide Water Oil Co. | 6 | 47,000 | 324,300 |
| Union Oil Co. of California | 12 | 110,500 | 762,400 |
| Vacuum Oil Co. | 9 | 76,000 | 524,400 |
| Total | 307 | 2,934,900 | 20,550,300 |

The above list, taken from the latest available records, shows that the principal American oil companies operate 307 tankers, of total tonnage of 2,934,900 tons, with aggregate carrying capacity of 20,550,300 bbls. All of the above totals are approximate, due to the fact that current construction is enlarging the fleets of the various companies, and that some of the more recent completions may not show in the above tabulation. These figures list only the tankers of the oil companies, and do not include those tank vessels owned and operated by private operators, oil transportation companies (not affiliated with oil companies), the United States Shipping Board, and the United States Navy. A number of the oil companies listed in this tabulation regularly charter a number of privately owned tankers to supplement their own fleets, often chartering independently owned vessels for periods of six months or more. The current building program of a number of the companies is due in some measure to the difficulty which has been experienced during the past year in chartering sufficient tonnage, at satisfactory rates, to take care of their requirements. While the tanker market at the close of 1928 was apparently greatly oversupplied, and charter rates the lowest in many years, 1929 has witnessed an almost complete reversal of this condition, with tank steamers difficult to obtain and charter rates high.

### Standard Shipping Co.

Standard Shipping Co., transport subsidiary of the Standard Oil Co. of New Jersey, operates a number of the largest tankers afloat, all named for men famous in the oil industry. The flagship of the fleet, the John D. Rockefeller, is of more than 19,000 tons burden, capable of carrying, roughly, 131,000 bbls. of oil. Other "super-tankers" in the fleet are the Charles G. Black, 20,580 tons; William Rockefeller, 21,045 tons; and the John D. Archbold, 21,257 tons. The two new tankers for which the company has just contracted in this country will be in this class. Other large tankers in the company's fleet, bearing the names of men long identified with Standard Oil, and all in the 100,000-bbl. class are the W. C. Teagle, Walter Jennings, A. C. Bedford, Charles Pratt, E. J. Sadler, E. M. Clark, E. T. Bedford, F. Q. Barstow, Fred W. Weller, H. H. Rogers, J. A. Moffett, Jr., and James McGee.

The large and modern fleet of Imperial Oil, Ltd., subsidiary of the Standard Oil Co. of New Jersey, numbers 17 ocean-going tankers, of aggregate tonnage of approximately 146,000 tons, and carrying capacity of more than 1,000,000 bbls.

Standard of New Jersey's fleet is further augmented by its purchase of a controlling interest in Anglo-American Oil Co., which has a total of 21 ocean-going tankers, of aggregate tonnage of about 167,000 tons, and carrying capacity in excess of 1,000,000 bbls. In addition, the New Jersey company, through its ownership of Beacon Oil Co., may be credited with the three tankers of carrying capacity of about 210,000 bbls. possessed by that company.

While the current trend among most major oil companies is now toward the construction of large tankers, capable of carrying 100,000 bbls. of oil or more, Standard Oil Co. of New Jersey is far in advance of "the field" in this respect, having gone into the "super-tanker" field long before other American oil companies.

## FUEL OILS AGAIN ADVANCE IN OKLAHOMA

(Continued from Page 36)

than most of the other refinery groups with stocks, so far as gasoline is concerned, not excessive.

### California Dominates

Those who have made a study of the gasoline situation agree that the California expansion in refinery operation is dominating the market and no doubt will continue to be an important factor in 1930. The October data of the Government reflects this situation. Crude runs to stills at California refineries in October were 26 per cent greater than in the same month last year. California refiners have materially increased their yields of gasoline from crude oil so that the October output of gasoline was 46 per cent greater than in October of last year.

Looking at these data from another angle, California refinery operations in October, compared with the same month last year, account for 31 per cent of the increase in crude oil runs to stills for the entire country and over 50 per cent of the increase in gasoline output.

This gasoline output far exceeds the increase in West Coast consumption and the western export outlets. As a result large quantities are being brought around to the East Coast and are competing actively with eastern refiners in European outlets. Although crude oil production has been curtailed in California, it is not expected that the quantity of gasoline brought around to the East Coast will decrease. In fact it now appears probable that the quantity will show another substantial increase.

This situation directly affects not only the eastern refiners but the entire country. From the Mid-Continent angle it has further restricted the normal marketing area for refiners and has made it increasingly difficult to sell gasoline at prices which permit profitable operation.

### Gasoline and Naphtha

The Oklahoma spot market in gasoline probably never was less active than it has been for the past week. The bulk of the business is confined to contracts with domestic jobbers and exporters.

In the domestic market the relatively few spot buyers of U. S. Motor gasoline have no difficulty buying as low as 6½ cents in Oklahoma and a few sales under that figure have been reported. One Middle Western refiner is reported to have unloaded large quantities of U. S.

Motor gasoline at prices which if they had been sold in Oklahoma would have netted the refiner under 6 cents. As long as this liquidation of stocks continues there is no hope for improvement in prices.

Cold weather in some of the Middle Western states has reduced consumption over the past two weeks and this has been reflected in the contract movement and in shipments to refinery controlled outlets. The colder weather has aided the demand for high gravity gasoline. This demand, coupled with the export shipments which extend until after the first of the year, is preventing large accumulations of these grades and prices are fairly firm. The 60-62 400 endpoint grade is selling at 7¼ to 7½ cents, 390 at 7½ to 7⅝ cents and 64-66 375 at 7¾ to 8 cents. The 68-70 360 and 350 endpoint grades are relatively scarce and with a fair domestic demand sellers are maintaining a price of 8⅛ to 8¼ cents.

All makers of 450 endpoint naphtha report a good demand. Some of the higher endpoint and lower gravity grades are not so active and lower prices are reported.

**Kerosene and Distillate**

Several refiners, not only in Oklahoma but also in Kansas and North Texas, are anxious to sell kerosene. A large purchaser could probably obtain concessions under the present prevailing market of 4¼ to 4¾ cents for the 41-43 water white grade. A few domestic sales under the 4¼-cent figure were reported the latter part of last week.

Refiners making a quality kerosene with regular outlets are not taking the low of the market, many of them securing 4½ and 4¾ cents. The higher gravity grades of kerosene are as weak as the 41-43 grade. Additional cases are cited in which refiners have sold a 42-44 water white grade with a low flash at the 41-43 water white price.

The colder weather is bringing many orders for furnace oil distillates. This demand has not been sufficient to advance prices. The better grades are bringing 4 cents from the trade with a price range for the regular grades down to 3⅝ cents.

**Fuel Oil and Gas Oil**

The fuel oil market was aided last week when one of the large refiners with a plant in the Chicago district cancelled some of its orders. This company which formerly was a major factor in the fuel oil and gas oil market has gradually reduced its fuel oil output due to increased cracking facilities.

In Oklahoma the prices on the higher gravity grades are nominal. The low cold test grades are hard to find at any price. It is probable that more material will be available after the fifteenth of the month, although prices are expected to continue strong.

One refiner is reported to have closed a contract with a railroad buyer at a base price of 85 cents with any change to be based on 60 per cent of the posted price for 36 gravity crude oil. This contract is in line with the terms which have been discussed for several weeks and it is expected that similar contracts will be closed before the end of the year.

**Wax**

Buyers are endeavoring to secure lower prices in wax purchases. Inquiry of the past week for the 124-126 grade were around 3 cents f.o.b. New Orleans. Oklahoma refiners generally are refusing to sell at these prices and are storing their output where necessary.

# CONSERVATION GAINING MOMENTUM DECLARES SIR HENRI DETERDING

By A. E. Mockler

NEW YORK, Dec. 9.—The petroleum industry is making satisfactory progress toward the accomplishment of an adequate conservation program, said Sir Henri Deterding, managing director of the Royal Dutch-Shell companies, in an interview here prior to his return to Europe following his attendance at the annual American Petroleum Institute gathering in Chicago.

"I am optimistic by nature, and I am also optimistic on the outlook for the oil industry, because of the enormous strides toward conservation made by the American oil industry since I was here last March," said Sir Henri. "A big idea takes a big time to accomplish. The speed with which it moves in its early stages seems slow, but it is moving all the time. Like an electric accumulator it is storing up enormous energy which eventually makes the speed much faster. From what I experienced in my visit with oil men in Chicago, I am convinced that the movement of American oil industry toward real conservation is rapidly gaining momentum.

**California Praised**

"The biggest accomplishment has been in California where the excess production and accompanying unnecessary loss of natural gas was very large. California operators have done the greatest service to the oil industry at large. Other sections have done their share, of course, but a man who can produce the cheapest, as is the case of California's flush fields, and yet lead the way in real conservation measures, is far more courageous than the man who restricts overproduction in high-cost producing fields.

"I had an opportunity to watch and measure the work done by the meeting of the American Petroleum Institute. I cannot praise it sufficiently. Every man attending these sessions had opportunity to listen to his neighbors' views and experience in the business and learn something. If every industry would copy the sincere and energetic work of the Institute it would be of great good for all.

**Compliments Mr. Reeser**

"Mr. Reeser, the president of the Institute, impressed me particularly. He is a real leader who gets work done, one who enforces discipline and keeps to the subject being discussed."

Regarding producing conditions in the Venezuela fields, Sir Henri said no change had occurred. For some time there have been efforts to bring about a stoppage in new drilling in that area. He still feels Venezuela fields, where three large companies are conducting competitive drilling and production, should have their yield restricted. His company, Royal Dutch, is the largest producer there but apparently no satisfactory arrangement to reduce the yield has been concluded.

The United States made a big impression on the foreign oil magnate. "Its future has no limits," he said, "for many reasons but principally because it is a continent without tariff barriers between the several states."

## Late Fields

(Continued from Page 48)

Oil Co.'s No. 3 Trosper, SE cor. SW Section 13-11-3w, made 6,537 bbls. in 17 hours. The well was producing from sand at 6,243-58 feet. The total depth is 6,500 feet in silicious lime. Same company's No. 1 Verne, NW cor. SW SE Section 13-11-3w, blew in Tuesday morning, December 10, making 45,000,000 feet of gas and spraying oil.

The Indian Territory Illuminating Oil Co.'s No. 2 Fortson-Farley, NE cor. Section 24-11-3w, was reported as making 36,055 bbls. the first 24 hours, and has been corrected to 42,584 bbls. the first 24 hours.

Two other tests are ready to bail and may be completed in the next 24 hours. Indian Territory Illuminating Oil Co.'s No. 2 N. Emerson, NW cor. Section 30-11-2w, was bailing at a total depth of 6,433 feet. Skelly Oil Co.'s No. 1 Hoopes, NW cor. NE Section 31-11-2w, was ready to bail, after drilling out the plug at a total depth of 6,395 feet.

Prairie Oil & Gas Co. and others' No. 1 Sudick, 8-10-2w, Cleveland County, was drilling at 7,595 feet in hard lime. It is the deepest drilling test in the State at this time.

Tom Slick Oil Co.'s No. 1 Martin, NW cor. Section 13-13-1w, a wildcat near Jones, Oklahoma County, was drilling at 6,000 feet in sandy shale.

Coline Oil Co.'s No. 2 Warren, NW cor. SW, Section 18-11-2w, blew in Tuesday, December 10, flowing at the rate of 25,000 bbls. or more on an estimate. No gauge was available.

J. S. Cosden, Inc.'s No. 4 Gardner, SE cor. NW, Section 31-19-4w, Logan County, made 1,348 bbls. of oil, cutting 5 per cent. The oil was found in Wilcox sand at 6,002-31 feet. It extends production in the Marshall Pool a half mile south.

Magnolia Petroleum Co.'s No. 1 Brene, NW cor. NE NE, Section 8-7-7, East Little River Pool, made 2,592 bbls. from the Cromwell sand at 3,146-86 feet. The well is the third big well found in the East Little River Pool that is producing from the Cromwell sand.

Sinclair Oil & Gas Co.'s No. 2 Thompson, SE cor. NE SW, Section 18-9-7, East Seminole Pool, made 705 bbls. in 18 hours. It extends the production from the Wilcox sand in this pool.

### SOUTHWEST TEXAS

SAN ANTONIO, Tex., Dec. 10.—Grayburg Oil Co. took a saturated core from the Edwards lime at 3,897-3,902 feet in No. 1 Wells, Jose de la Baume Survey, Guadalupe County, 4 miles south of the Darst Creek discovery and started to haul out casing to set at 3,875 feet. Survey lines are also being run from the well to the company's pipe line from the Luling Field to San Antonio. If it proves a producer it will mean a new field as it is not connected with the Darst Creek Field and the Edwards is found about 1,300 feet deeper.

Six miles southwest of the discovery and in line with the Darst Creek Field Adams & Lyles' No. 1 Zoboroski topped the chalk at 2,320 feet (corrected from depth given in regular report) and has had saturated cores through the Taylor marl and into the chalk. Considerable oil has been bailed from the hole and many believe it would make a commercial well where it is.

### GULF COAST

HOUSTON, Tex., Dec. 10.—Production at the new Sheeks Dome prospect in western Liberty County was extended Tuesday with the completion of Cranfill & Reynolds' No. 1 Davis, David Kokernat Survey, flowing an estimated 400 bbls. of pipe line oil daily from a sand at 2,336 feet. The flow is held to a three-eighths-inch choke.

Calcasieu Oil Co.'s No. 5 Lemke, East Hackberry, Cameron Parish, has been completed flowing an estimated 2,200 bbls. daily pinched in from sandy shale at 3,800 feet.

Humble Oil & Refining Co.'s No. 8 Hamner fee, DeWalt, Fort Bend County, is flowing 200 bbls. at 3,765 feet, and the same company's No. 3 Beal at Raccoon Bend, Austin County, is making 3,525 feet.

### KANSAS

The wildcat test of Reynolds and others, No. 1 Koohn, NE cor. SE NE, Section 15-20-2w, McPherson County, Kansas, found a hole full of water in the chat at 2,985-90 feet. The test was drilling deeper at 3,005 feet to the Simpson.

Don Moore and others' No. 1 Stewart, C NE SE, Section 18-28-1w, Sedgwick County, wildcat, drilled the Simpson at 3,675-82 feet and encountered a hole full of water.

McBride, Inc.'s No. 2 Voshell, SE cor. NE NE, Section 9-21-3w, McPherson County, made 1,680 bbls. on the gauge of December 10, at 7 a. m. It is the largest producer in the State and also the largest well yet completed in the Voshell Pool.

### CANADA

CHATHAM, Ontario, Dec. 10.—In South Turner Valley, Alberta, Merland Oil Co.'s No. 1, Section 27-18-2w5, extinguished its burning well and has connected separators for a test of crude naphtha or light crude recovery. Gas flow from the Dalhousie sands is estimated 30,000,000 feet.

### TEXAS PANHANDLE

FORT WORTH, Tex., Dec. 10.—Dillards and others' No. 1 Furneaux Brothers, southeast quarter of Section 202, Block B-2, H.&G.N. Survey, which topped a granite wash pay from 3,070-75 feet. November 2, and opened up a new area 15 miles southwest of Lefors Pool in Gray County when it started flowing 10,000,000 feet of gas and 5 bbls. of oil daily, has been deepened to 3,180 feet, encountering an increase in oil and is now spraying 20 bbls. daily, thereby certifying a new pool in this part of Gray County, Alexander and Shell Petroleum Corporation's No. 1 Harrah, in southeast quarter of Section 163, Block 3, I.&G.N. Survey, had a show of gas at 3,131 feet and filled 1,000 feet with oil from 3,159 feet; casing is now being set. This well is 3½ miles north of Kings Mill.

## WEST TEXAS GEOLOGISTS CHOSE 1930 OFFICERS

The West Texas Geological Society, with headquarters in San Angelo, has elected Robert E. Rettger of that city president; George Vorbe of Midland, vice president, and Robert L. Cannon of San Angelo, secretary-treasurer, for 1930. Mr. Rettger is district geologist for the Sun Oil Co., and succeeds V. E. Cottingham, San Angelo, consulting geologist. Mr. Vorbe is with the Texas Pacific Coal & Oil Co. and takes the place of A. L. Ackers of the Southern Crude Oil Purchasing Co. at Midland. Mr. Cannon follows G. E. Green of Midland in office.

About 75 resident geologists and society members from other West Texas oil towns heard W. E. Wrather, Dallas, geologist, read a paper on South African geology and exhibit motion pictures of that country which he took while on field work last summer after attending the Fifteenth International Petroleum Congress at Pretoria, South Africa. A large exposure of the Permian in South Africa bears evidence of much older life than the Permian from which most of the oil in West Texas is produced, Mr. Wrather said.

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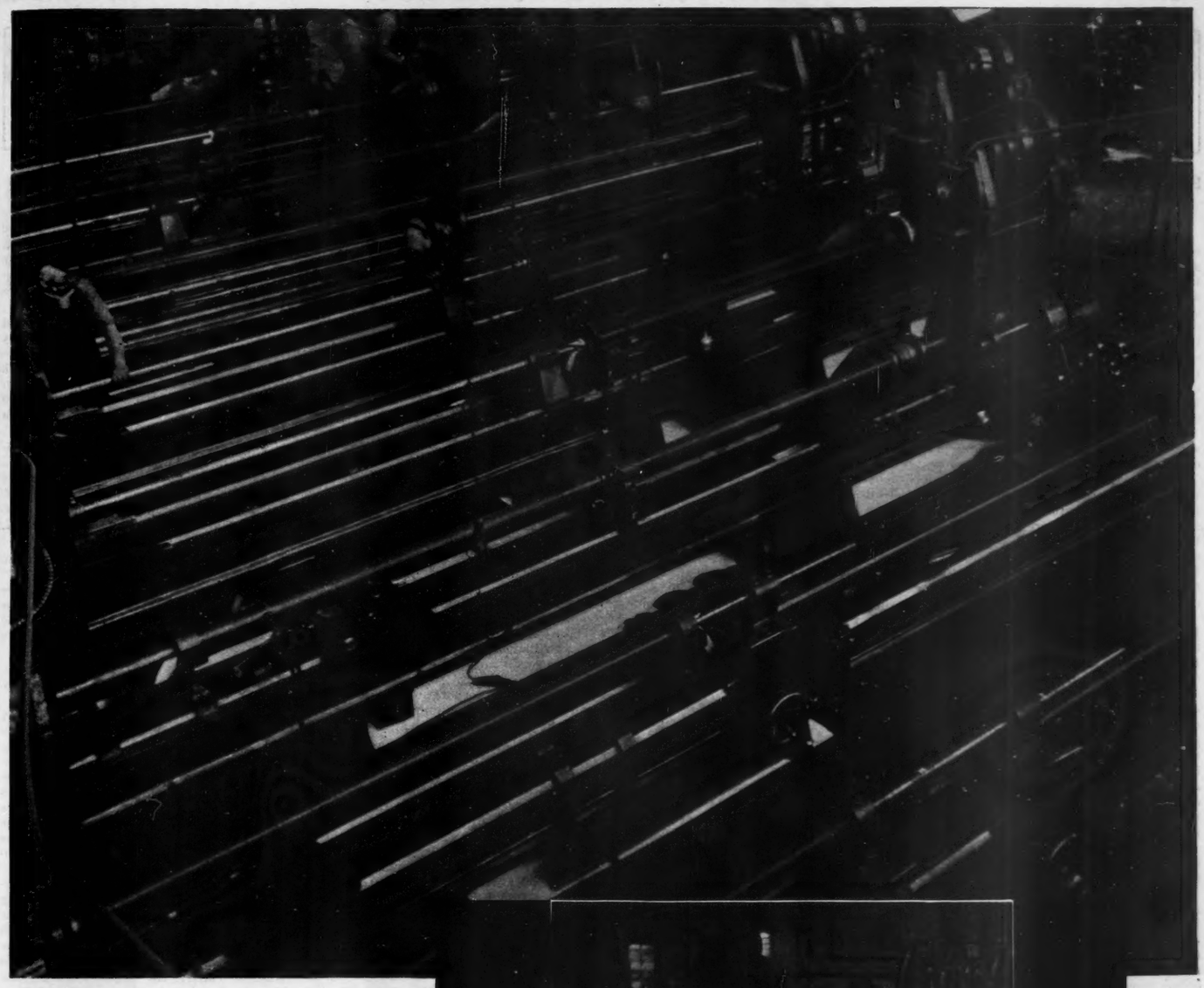

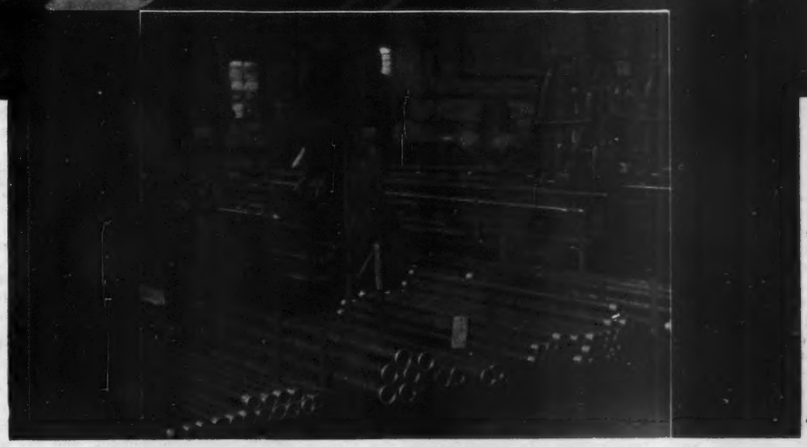

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# Of Interest to Sales Departments

## EXPLAIN PRINCIPLES OF TRADEMARK PROTECTION

Many of the claims made by the so-called "Trademark Specialists" in regard to the legal protection necessary in the use of trademarks are exaggerated according to a report of the Committee on Trademarks and Unfair Competition of the Association of the Bar of the City of New York. Oil jobbers and other marketers of petroleum products in many instances have received circular letters explaining that they were in danger of losing their trademarks unless they secured Federal and state registration.

The New York committee in its report sets forth in a bulletin the general principles of trademark protection as follows:

"1. The first person to use a trademark on merchandise acquires title thereto in the territory where his goods are marketed. Therefore the suggestion by these trademark specialists that the owner of a trademark is in danger of losing his mark by not having it registered according to their suggestions is entirely contrary to fact.

"2. Registration in the United States Patent Office is not at all essential for the protection of vested trademark rights. It is desirable as being prima facie evidence of ownership (when secured under the 1905 Act), and for other practical and procedural reasons such as giving the registrant the right to use with his mark the phrase 'Registered United States Patent Office' and the right to bring suit in the Federal courts. The advertising trademark specialist in the cases investigated has exaggerated the importance of specific forms of registration and the language used is suceptible of a construction which might mislead the trademark owner as to the true situation.

"3. As a rule no mistake fatal to common law trademark rights can be made in obtaining a trademark registration, but it is usually advisable, because of the technical nature of the procedure and the probable need of overcoming patent office objections, that competent counsel should be entrusted with this work. The specialist's warning that a single defect lurking in a registration may cause the loss of a mark and the good will of the business and similar expressions are obviously erroneous.

"4. Vested trademark rights are recognized and protected by the courts in all the states irrespective of state or Federal registration. Therefore the statement often found in some of the circulars and letters sent out by these self-styled specialists that state registration is necessary in order adequately to protect trademark rights is not true. State registration is helpful only in exceptional cases and the trademark owner should not be burdened with the large expense involved in securing such registration except in unusual cases."

## RECOMMENDS CURB PUMPS

CHICAGO, Dec. 9.—The perennial question of permitting the use of curb pumps in this city has been revived through a recommendation of the gas, oil and electric light committee of the Common Council that such pumps be permitted on payment of a fee of $100 each, this amount to be paid annually as a license fee. A rather recent decision has been rendered that such license fees must not exceed the cost of issuing the license. This decision has been rendered in certain cases and might apply to the issuing of licenses on curb pumps. However, the dealers in cigarettes pay a license of $100 while the sale of cigars may be conducted without the payment of any local license fee.

## 1929 SALES OF ETHYL GASOLINES TO TOTAL 1,200,000,000 GALLONS

Sales of Ethyl Gasoline in the United States and Canada in 1929 will total approximately 1,200,000,000 gallons according to an estimate of the Ethyl Gasoline Corp. which now has 67 refining and marketing organizations licensed to sell the product. A total of 800,000,000 gallons of Ethyl Gasoline were sold in the two countries in 1928 so that the 1929 demand represents a 50 per cent increase.

Reports from all sections of the country indicate that there has been a rapid increase in the sale of Ethyl Gasoline. With an estimate of 16,000,000,000 gallons for the gasoline consumption in the United States and Canada in 1929 the sales of Ethyl Gasoline will represent 7 per cent of the total.

The Ethyl corporation at this time is considering specifications for an aviation grade of Ethyl Gasoline. This gasoline grade if adopted will have distillation specifications suitable for use as motor fuel in airplanes. At present there is considerable gasoline used by the aviation trade which is ethylized. This is done by the individual oil companies and no specifications for the base fuel are required as in the case of licensees serving the motor vehicle trade.

There has been an exceptionally large gain in the sale of Ethyl Gasoline in the Middle Western states. Up until April 1 of this year, the Standard Oil Co. of Indiana had an exclusive contract for the sale of the product in 11 states which consume from 25 to 30 per cent of all the gasoline consumed in the United States. Since the exclusive contract of the Standard expired approximately 25 companies either through their own stations or through jobber customers, have started the sale of Ethyl Gasoline in these Middle Western states.

While this widespread competition has naturally reduced the gallonage per company all of the licensees of the Ethyl corporation report a satisfactory business and the combined sales of these companies is greatly in excess of the Standard sales last year. Largely, the same situation is found in other territories.

On the West Coast, the Standard Oil Co. of California has joined the list of several independent companies who are selling Ethyl Gasoline in the western states. The situation of the Standard Oil Co. of California is said to have been similar to that which has confronted several other large distributors. The California Standard enjoys a large gallonage including the sale of a premium grade of gasoline. The company, however, found that many of its customers desired the Ethyl Gasoline so that the management decided to add it to its list of products. In several cases the companies who recently have been licensed to sell Ethyl Gasoline continue to sell their other premium grade of motor fuel.

In this connection an executive of one licensed company which operates a large chain of company owned stations said that tests made by laboratories had shown that their premium grade of gasoline which was a cracked product refined at their own plants, had an antiknock rating comparable with Ethyl Gasoline. He added that the national advertising campaign carried on by the Ethyl Gasoline Corp., had convinced many car owners of its desirability as motor fuel and his company had decided to offer it through their stations. The company will continue to push the sale of its first premium grade as well as the ordinary domestic grade.

There has been an increase in the demand for many other grades of premium gasolines which are high in antiknock value. Distributors have found that car owners are willing to pay a premium of from 2 to 4 cents over the ordinary grade when the product has merit. Due to this situation practically all the distributors have stressed their premium motor fuels in their advertising and sales campaigns. In addition to the antiknock rating, manufacturers of premium gasoline are usually careful to have a distillation range in their premium motor fuels which give the volatility necessary for ease in starting and rapid acceleration.

No total figures are available as to the consumption of premium motor fuels other than Ethyl Gasoline. Cases in which the sales run 25 per cent of the total are not exceptional and sales of individual stations often show a 50-50 split between the ordinary and premium grades.

The Ethyl Gasoline Corp. is constantly adding to its lists of licensees in the United States and Canada and it is known that other companies expect to secure licenses early in 1930. The demand has been so heavy since early summer that the Ethyl corporation has had difficulty increasing the supply of tetraethyl to take care of requirements.

Among the recent licenses, are the Mid-Continent Petroleum Corp., Transcontinental Oil Co. and the National Refining Co. These companies are now engaged in stocking their refineries and stations preparatory to offering the product to their customers. The Mid-Continent Ethyl will be sold under the trade name of "Nevr-Nox Ethyl"; the Transcontinental, "Marathon Ethyl" and National, "White Rose Ethyl."

The National company in some sections has been marketing only one grade of gasoline and this was sold at a premium of 3 cents over the ordinary grade of competing companies. Under the new plan the "White Rose Ethyl" will be the premium grade and a white grade will be sold at regular prices.

## MAKE SPECIAL PRODUCTS

NEW YORK, Dec. 9.—Chesebrough Manufacturing Co., manufacturing and marketing "Vaseline" products, represents one branch of the petroleum industry which is unaffected by overproduction. Dividend payments by the company this year total $6.50 per share, against $6 last year, and current indications are that net earnings will at least equal $1,269,628 reported for 1928.

The company operates plants at Perth Amboy, N. J., Pittsburgh, Pa., Montreal, and London, and has warehouses at New York City and other points. In addition to its principal and best known products, "Vaseline" petroleum jelly, both yellow and white, marketed in bottles and tubes, the company makes camphor ice, eucalyptol petroleum jelly, camphorated cream, mentholated petroleum jelly, hair tonic, analgic petroleum jelly, capscicum petroleum jelly, zinc oxide ointment, carbolated petroleum jelly, and pomade, all of which are marketed under the "Vaseline" trademark.

## ADDING STORAGE

NEW YORK, Dec. 9.—The Franklin Creek Refining Co., Franklin, Pa., is constructing several new storage tanks at its plant. The expansion, it is reported, is required because of the growing export business which the company is now carrying on.

## CONTINUE BOAT SHIPMENTS

Dundee crude oil will be moved by barge from Muskegon to the Standard Oil Co. of Indiana refineries at Whiting, Ind., from now until the close of the navigation season on Lake Michigan expected about December 15 or 20, it was announced today.

The Standard Barge "C" was towed into the Muskegon Harbor last week by the tanker Renown. Its cargo of gasoline was unloaded at the Lakeside tank farm of the Standard company and then the barge was loaded with about 36,000 bbls. of Dundee crude oil for the return trip to Indiana Harbor, Ind.

The tanker Panoil of the Pan American Petroleum Co., which has been in service carrying Dundee crude from the Muskegon Field to the refineries at Whiting made its last trip out of the Muskegon Harbor Thursday, November 7. It had a capacity of 16,000 bbls.

It is expected that one or two more trips will be made with the Barge "C" depending upon the supply of Dundee crude run by the Dixie Pipe Line Co. for the Standard of Indiana and upon the weather and ice conditions on Lake Michigan.

## MONTANA SEEKS LOWER RATES

GREAT FALLS, Mont., Dec. 7.—A conference was held at Great Falls in regard to the situation on the freight rates governing shipments of oil in Montana. The conference was attended by representatives of all the refining companies in Montana and also by representatives from oil companies doing business in the State. The meeting was held under the auspices of the Montana Railroad Commission.

The commission recently made an order to the railroads to reduce the existing rate approximately 29 per cent. The railroads held this order unjust and took the case to the courts where it is now pigeonholed. The meeting at Great Falls was to clarify the situation regarding the stand taken by the oil firms interested and the Railroad Commission.

## ANOTHER GASOLINE LINE

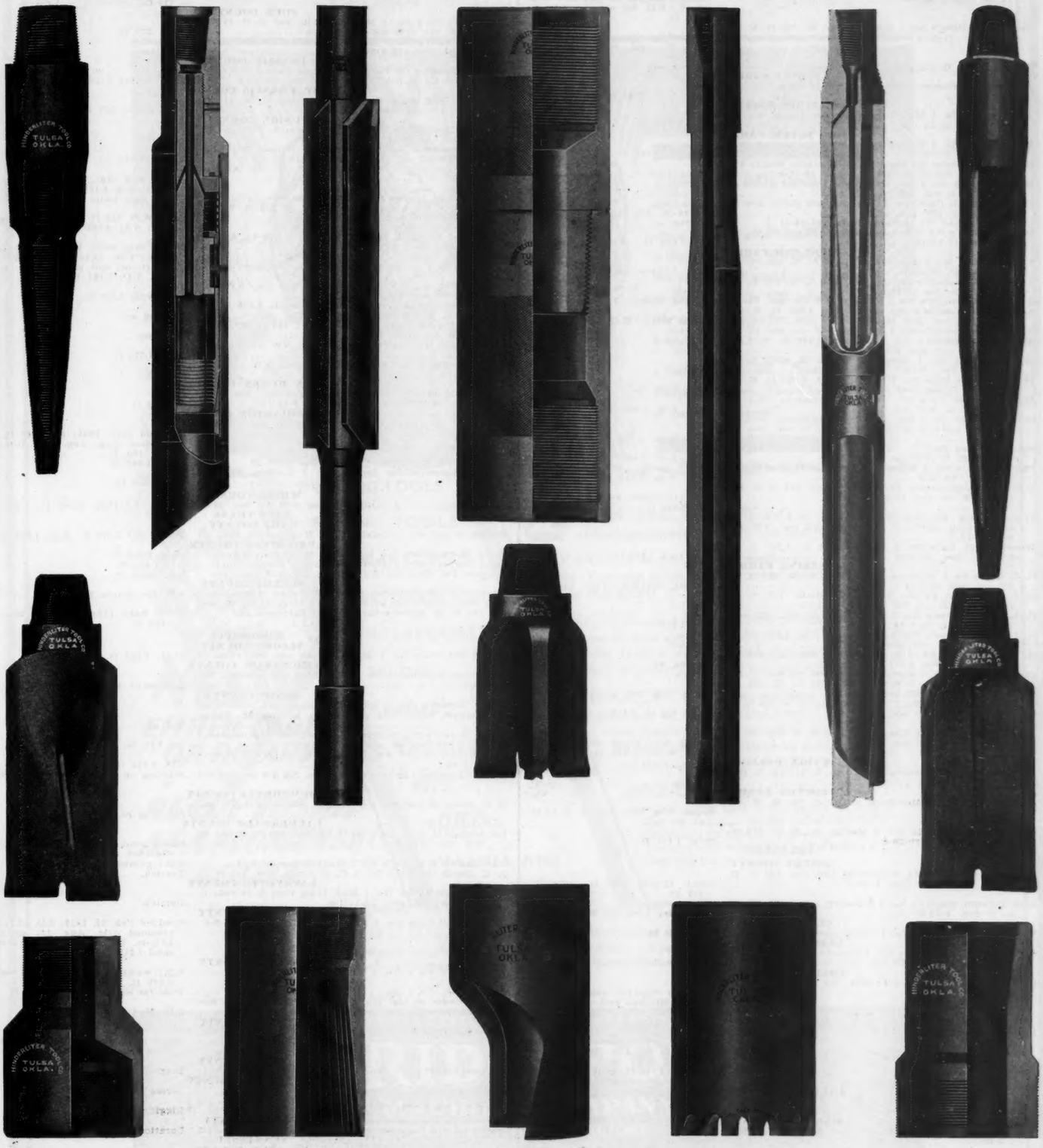
WASHINGTON, D. C., Dec. 7.—A new pipe line was laid recently by the Bataafsche Petroleum Co. (Royal Dutch) between Tjepoe and Grissee, a suburb of Surabaya, Java, 170 kilometers in length and constructed of 8-inch cast iron pipe, except for a small 5-inch section. The line is to be used exclusively for gasoline. The fuel will be pumped from company's refinery at Tjepoe to its new canning plant without the assistance of "boosters."

Savings in costs and facilitation in transportation are contemplated through use of the new line, all gasoline and other products formerly having been shipped by rail. The line is the largest and longest in Java and its construction has aroused considerable interest locally, according to Consul Edward M. Groth at Surabaya.

## SHELL ORDERS LAKE TANKERS

CHICAGO, Dec. 9.—The Lake Transport Corp., a subsidiary of the Shell Petroleum Corp., has ordered two tankers for use on the Great Lakes. They will be equipped with Diesel engines with electric drives and be of the most modern construction. The Standard Oil Co. has been operating four tank ships on the lakes, one of which has been used for the carrying of crude from the Muskegon oil field to the refinery at Whiting. This tanker, the Panoil, was brought around from the Atlantic and is now to be returned to the Atlantic service.

# SOME ROTARY TOOLS



By

HONEST TOOLS

HINDERLITER

ROTARY STANDARD CABLE

# WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 54)

**NATCHITOCHES PARISH**

S. D. McDaniel's No. 2 Clark & Morse, 800 ft. E, 350 ft. N, C. Sec. 23-5-6 ..... Tested 1,000,000 ft. gas and S.W 8 ft.; S.D. for orders; T.D. 2,536 ft.

Nichols & Wilder's No. 1 Clark, 150 f.. W, 250 ft. N, SE cor. Sec. 10-10-8 ..... Began drlg. Oct. 28; cmtd. 10-in 205 ft; drlg. chalky lime 2,000 ft.

Robeline O. & G. Co.'s No. 1 Winn, Sec. 7-8-9 ..... Rigging up.

**OUACHITA PARISH**

J. L. Bullock, trustee's No. 1 West Va. Lbr. Co. N½ NE, Sec. 25-18-5 ..... Cmtd. 9-in. 2,303 ft; drlg. 2,338 ft.

**RAPIDES PARISH**

Ayers Bros.' No. 1 Wickliff, 2,790 ft. N, 150 ft. E, SW cor. Sec. 9-5n-2e ..... Drlg. 1,810 ft.

**RED RIVER PARISH**

W. D. Ball's No. 1 Krumholtz, 660 ft. S, 660 ft. S. NW cor. Sec. 32-14-10 ..... Reaming 1,300 ft.

Benedum & Trees Oil Co.'s No. 1 Franklin Realty Co., 350 ft. E, 350 ft. S, NW cor. Sec. 29-11-9 ..... Coring 3,745 ft.

Eylers O. & G. Co.'s No. 4 Chaffraix, 150 ft. S, 170 ft. W, NE cor. SW SE Sec. 30-12-10 ..... S.D. 2,750 ft.

Eylers O. & G. Co.'s No. 1 Johnson, 500 ft. N, 500 ft. W, SE cor. SW Sec. 17-12-10 ..... Set 10-in. 203 ft.; S.D. 1,050 ft

LeGrande et als' No. 1 Sample, Sec. 11-14-11 ..... Rigging up.

D. H. Riddick's No. 1 Johnson, 500 ft. N, 500 ft. W, SE cor. Sec. 17-12-10 ..... S.D. 1,050 ft.; laying gas line.

**RICHLAND PARISH**

J. T. Austin's No. 1 Singleterry, 1,980 ft. N, 660 ft. W. SE cor. Sec. 20-18-7 ..... Cmtd. 15½-in. 208 ft.

Austin & McDonald's No. 1 Hunt, 594 ft. N, 660 f.. E. SW cor Section 13-17-5 ..... Derrick.

Austin & McDonald's No. 2 Millsaps, SW cor. Sec. 17-17-6 Waiting orders; T.D. 2,679 ft.

Austin & McDonald's No. 3 Millsaps, 1,980 ft. S, 660 ft. E, NW cor. Sec. 16-17-6 ..... Tested S.W.; W.O. 2,477 ft.

Austin & McDonald's No. 4 Millsaps, NW cor. Sec. 16-7-6 Location.

Austin & McDonald's No. 5 Millsaps, 2,640 ft. N, 1,320 ft. W, SE cor. Sec. 8-17-6 ..... Derrick.

W. C. Feezel's No. 1 Landrum, 620 ft. N, 4,573 ft. E. SW cor. Sec. 6-16-7 ..... Derrick.

Industrial Gas Co.'s No. 1 T. H. Hodge, 3,259 ft. E, 1,320 ft. S, C, Sec. 7-16-7 ..... Drlg. 2,335 ft.

Industrial Gas Co.'s No. 1 A. T. Davidson, 1,856 ft S, 916 ft. E, NW cor. Sec. 6-16-7 ..... Cmtd. 6-in. 2,300 ft.

Industrial Gas Co.'s No. 1-A Jack Davidson, N 1degree W, 1,094 ft. S, 2,501 ft. E, NW cor. Sec. 6-16-7 ..... Cmtd. 6-in. 2,300 ft.

Industrial Gas Co.'s No. 1 Rus on Drlg. Co., 1,980 ft. S, 1,955 ft. E, NW cor. Sec. 7-16-7 ..... Cmtd. 6-in. 2,300 ft.

Palmer Corp.'s No. 2 Miles, 723 ft. E, 660 ft. S, NW cor. NE, Sec. 12-17-6 ..... Cmtd. 6-in. 2,315 ft.

Shreveport Contractors, Inc.,s No. 1 Buie, 600 ft. E, 400 ft. N, SW cor. Sec. 17-15-7 ..... O.W.D.D; cmtd. 6-in. 2,315 ft; T. D. 2,361 ft.

Triangle Drlg. Co. and Woodley Pet. Co.'s No. 1 G. L. Cumpton, 660 ft. S, 660 ft. W, NE cor. NW SE. Sec. 16-17-7 ..... Cmtd. 9-in 2,303 ft.

Woodley Pet. Co.'s No. 1 Buie, 660 ft. N, 1,980 ft. E, SW cor. Sec. 32-18-7 ..... Drlg. rock 2,150 ft.

**SABINE PARISH**

R. L. Gay's No. 5 Bowman-Hicks, 1,120 ft. W. 920 ft. N, SE cor. Sec. 14-7-14 ..... Full oil; W.O.S.R.; T. D. 2,586 ft.

R. L. Gay, trustee's No. 6 Bowman Hicks, 900 ft. N, 800 ft. W, SE cor. NW SE Sec. 14-7-14 ..... Location.

R. L. Gay, trustee's No. 1 Long-Bell Lbr. Co., NE cor. NW NW Sec. 26-8-14 ..... S.D. 3,604 ft.

R. L. Gay, trustee's No. 3 Sabine Lbr. Co., 1,120 ft. N, 200 f.. E, SW cor. Sec. 13-7-14 ..... Location.

G. M. LeGrand's No. 1 A. C. Haley, 1,020 f.., 3,300 ft. E. NW cor. Sec. 6-7-12 ..... Rigging up.

Olsen Brothers' No. 1 Keeler, SW cor. SW SE Sec. 27-8-12 Derrick.

D. H. Riddick's No. 1 Scretchfield, 400 ft. E. 400 ft. N, SW cor. NW SE Sec. 18-9-12 ..... Began drlg. Dec 3.

Sabine O. & G. Co.'s No. 1 Anderson, 200 ft. N. 200 ft. E SW cor. SW NW Sec. 19-18-13 ..... Cmtd. 6⅝-in. 2,174 ft.; T.D. 2,189 ft.

A. H. Tarver's No. 1 Long-Bell, 330 ft. S, 330 ft. E. NW cor. SW NW, Sec. 29-8-13 ..... Tested dry; small show oil and gas W.O.; 3,625 ft.

**UNION PARISH**

Fred S ovall's No. 1 Stovall, 1,820 ft. E, 350 ft. N, SW cor. Sec. 32-23-4 ..... Rig up.

**WEBSTER PARISH**

F. M. Fuller's No. 1 Monzingo, 200 ft. N, 200 ft. W, SE cor. Sec. 27-18-8 ..... Began drlg. Nov. 10; cmtd. 10-in at 62 ft.

Paul C. Warren et als' No. 1 Martin, 305 ft. N, 212 ft. E, SW cor. Sec. 20-20-9 ..... Drlg. 1,420 ft.

**ARKANSAS**

**ASHLEY COUNTY**

Ark. Fuel Oil Co.'s No. 1 Crossett Lbr. Co., 330 ft. E. 330 ft. S, NW cor. Sec. 1-19-7 ..... Cmtd. 12½-in. 293 ft; drlg. 1,185 ft.

J. G. Marcum, trustee's No. 1 McGarry, 300 ft. W, 100 ft. S, C Sec. 9-19-4 ..... Tested dry 3,300 ft.; W.O.

**CLARK COUNTY**

Wm. Henry trustee's No. 1 Clark, Sec. 34-9-21 ..... S.D. 1,200 ft.

**CLEBURN COUNTY**

Cosden Oil Co.'s of Ark.'s No. 1 Donophan, 100 ft. S, 660 ft. E, NW cor. SW SE Sec. 19-9-10 ..... Drlg. 350 ft.

**COLUMBIA COUNTY**

Parker and others' No. 1 Franks, 330 ft. S, 330 ft. W C Sec. 25-19-22 ..... Formerly reported abandoned 150 ft. by Mitchell and others; drlg. 2,503 ft.

**DREW COUNTY**

McClintock & Goodka's No. 1 Ogles, 920 ft. W, 400 ft. S, NE cor., Sec. 35-13-5 ..... O.W.D.D; rptd. junked and abd. at 2,575 ft. Aug. 30, 1926; resumed drlg. Nov. 15, 1929. pulled 1,740 ft. drill stem; milling out of csg. at 1,740 ft.

**FAULKNER COUNTY**

Gold Creek Oil & Gas Co.'s No. 2 Stermer, SE cor. NW SE Sec. 17-4-13 ..... Rigging up.

**GARLAND COUNTY**

Givens et als' No. 1 Garrett, 660 ft. S, 660 ft. W, C Sec. 1-3-19 ..... Began drlg. Aug. 10, 1926; hard sand 3,168-96 ft.; claims show gas; drlg.

**GRANT COUNTY**

Jones & Watkins' No. 1 Meek, Sec. 5-4-11 ..... S.D. 1,400 ft.

**LITTLE RIVER COUNTY**

A. L. Buck's No. 1 Greason, NW NW, Sec. 25-12-32 .... Drlg. 1,995 ft.

McDonald & Shaw's No. 1 W. E. Black, 240 ft. N, 450 ft. W, SE cor. SE NE Sec. 12-13-28 ..... S.D. 1,748 ft.

**MADISON COUNTY**

Phillips Pet. Co. and F. S. Craver's No. 1, C Sec. 11-14-23. Tested 250,000 ft. gas 63 ft; S.D.

**OUACHITA COUNTY**

Artex Oil Co.'s No. 1 M. V. Smith, 330 ft. S. 330 ft. E. NW cor. SE NW, Sec. 21-15-17 ..... Cmtd. sand showing oil and salt water 1,732 ft.

Copenhaven et als' No. 1 Warnick, Sec. 2-15-17 ..... S.D. 2,190 ft.

Kobler & Erickson's No. 1 Rumph & Tyson, 300 ft. N, 300 ft. W, SE cor. Sec. 13-15-15 ..... Set 10-in. at 93 ft.

C. H. McDonald's No. 1 Fogle, Sec. 13-14-16 ..... S.D. 2,301 ft.; W.O.

Pure Oil Co.'s No. 1 A. A. Wilson, 330 ft. N, 330 ft. W, SE cor. NW SW Sec. 26-15-18 ..... Drlg. 2,255 ft.

Wesson et als' No. 1 Booth, Sec. 12-15-19 ..... S.D. 2,203 ft.

**PIKE COUNTY**

Theo. Davis, trustee's No. 1 Ruth Wilson, 200 ft. S, 200 ft. W, NE cor., Sec. 25-5-26 ..... Straightening crooked hole; T.D. 718 ft.

**POPE COUNTY**

Cosden Oil Co.'s No. 1 Mo. Pac. R.R., 660 ft. N, 660 ft. E, SW cor. NW SE Sec. 13-9-9 ..... Drlg. 330 ft.

M. W. Greeson's No. 1 C. S. Parke, 330 ft. N, 330 ft. W, SE cor. Sec. 21-8-24 ..... Location.

**PRAIRIE COUNTY**

Transcontinental Oil Co.'s No. 1 Louis Novak, 330 ft. E, 330 f.. N, SW cor. SW NE, Sec. 36-2n-6 ..... S.D. for fuel 2,320 ft.

**ST. FRANCIS COUNTY**

Brownlee Drlg. Co.'s No. 1 Whitted, 110 ft. N, 110 ft. E, SW cor. SE NW Sec. 28-4-1 ..... S.D.; funds, 300 f..

**UNION COUNTY**

Addie & Modisette's No. 1 Union Sawmill, SW cor. SW SE Sec. 25-19-12 ..... Location.

Sam Arrendale's No. 1 Gallagher & Nelson, 200 ft. N and W, SE cor. Lot 5, Sec. 18-18-17 ..... S.D. 2,268 ft.

Bredham and others' No. 1 Craig, SW cor. NW NE Sec. 6-18-15 ..... Began drlg. Nov. 26; cmtd. 10-in. 63 ft.; drlg 1,100 ft.

W. M. Coates, trustee's No. 1 McDuffie, Sec. 32-19-17 .. Tested salt water 4,971 ft.; W.O.

O. W. Estes' No. 1 Felsenthal, 330 ft. S. 330 ft. W, NE cor. NE NW Sec. 2-18-15 ..... S.D.; W.O. 125 ft. oil and S.W. in hole; T.D. 2,191 ft.

O. W. Estes' No. 1 Telford, 330 ft. S, 320 f.. E, NW cor. SW Sec. 35-17-15 ..... Began drlg. Sept. 18; cmtd. 10-in. 60 ft.; 6-in. 2,110 ft.; S.D. W.O. 125 ft. oil and salt water in hole, T.D. 2,191 ft.

Federal Pet. Co.'s No. 1 Union Sawmill fee, NW cor. NE SW Sec. 5-17-12 ..... S.D; W.O; 3,340 ft.

Joe Modisette et als' No. 2 Union Sawmill, 1,620 ft. W. 1,020 ft S, NE cor., Sec. 14-18-14 ..... Rigging up.

Oil Well Corp.'s No. 1 Union Sawmill, 150 ft. S, 150 f.. E, NW cor., Sec. 10-19-14 ..... Location.

Stark et als' No. 1 Ainsworth, NE cor. NW NE NE, Sec. 8-19-16 ..... Drlg. 1,670 ft.

T. J. Woodley's No. 1 First Natl. Bank, NW cor. Sec. 34-19-18 ..... Derrick.

**VAN BUREN COUNTY**

Glenn Cole et als. trustees No. 1 Scanlan, 200 ft. S, 200 ft. W, NE cor. SE NW Sec. 5-19-13 ..... S.D. 50 ft.

**WASHINGTON COUNTY**

O'Hara & Shetterly's No. 1 Boyd, SE cor. SE NE, Sec 12-16-32 ..... Spudded Sept. 1928; S.D. 140 ft., resumed drlg. Aug. 25; U.R.; T.D. 150 ft.

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... Drlg. 1,640 ft.

Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32 ..... S.D. 1,500 ft.

**WHITE COUNTY**

Letona Synd.'s No. 1 Letona, SE cor. NW SW Sec. 35-9-8 Cmtng. 5 3/16-in. 3,500 ft; S.D.

**EAST TEXAS**

**CAMP COUNTY**

Rogers et als' No. 1 Enfelt, R. M. Montgomery Sur. ..... Tested dry 1,870 ft.; S.D., 1,920 ft.

**RED RIVER COUNTY**

D. M. Buffington's No. 1 Hossier, E. Hughhart Sur ..... Drlg. 2,050 ft.

Shad Harper's No. 1 W. R. Garland, J. Wagley Sur ..... S.D. 1,862 ft.

Johnson Pet. Co.'s No. 2 Randolph, Edward Dean Sur ..... S.D. 2,000 ft.

**SHELBY COUNTY**

Chapperall Oil Co.'s No. 2 Holt, Matthew Moore Sur ..... S.D. for orders 3,004 ft.

Gulf Ref. Co.'s No. 2 Pickering, 463 ft. S, 29 ft. W, SW cor. P. W. Harvey Sur. in J. H. Patterson Sur ..... Cored hard gray lime and shale 3,552 ft.

**MISSISSIPPI**

**ALCORN COUNTY**

Alcorn Pet. Co.'s No. 1 Matthews, SE cor. Sec. 14-2s-7e Drlg. 2,700 ft.

**CHICKASAW COUNTY**

Hightower & Golson's No. 1 Flemming, NE cor. Sec. 20-13-3 ..... Quicksand 1,240 ft.

**HINDS COUNTY**

Harry Gerson's No. 1 Edward House, Blk. 16, West Jackson Subd., City of Jackson, in Twp. 5n, Range 1e ..... Rig up.

Oscar Brown's No. 1 Riverside (formerly Hennessee et als') SE cor. SE SW Sec. 23-16-5 ..... Set 12½-in. 30 ft.; S.D. 1,050 ft.

Mrs. Reeder et als' No. 1 State, SE cor. NW NW Sec. 25-6-1e ..... S.D. 2,895 ft.

South Christian Institute's No. 1 fee, SE SW Sec. 29-6-4.. Waiting on csg. to set; T.D. 1,203 ft.

**HUMPHREYS COUNTY**

E. C. Steele et als' No. 1 C. B. Box, SE cor. SE NE Sec. 25-14-4w ..... Set 12½-in. 60 ft.; S.D.

**LAUDERDALE COUNTY**

Lauderdale O. & G. Co.'s No. 1 Lackey, 990 f.. S.and E. NW cor. NE Sec. 2-7-16 ..... Cored sand, shale and gumbo 2,494-2,500 ft.; S.D. 2,786 ft.

Meridian O. & G. Co.'s No. 1 Hauser, Sec. 33-8-18 ..... S.D.; gumbo 2,410 ft.

J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 2-6-14 .. Derrick.

**LAFAYETTE COUNTY**

Banks-Goode et als' No. 1 May, 113½ rods S, 26 rods E, NW cor. SW Sec. 22-10-1w ..... Derrick.

**LINCOLN COUNTY**

La.-Miss Oil Co.'s No. 1 Pat Case, NE NE Sec. 21-8-6 .. Spudded Feb. 17, 1929; S.D. 50 ft.; resumed drlg. Aug. 13; cmtd. 12½-in. 368 ft.; S.D. salt water sand 1,213 ft.

**MONROE COUNTY**

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D.; waiting for 5 3/16-in. csg. 2,580 ft.

Amory Pet. Co.'s No. 1 Hall, Sec. 8-13-19 ..... Fish. for liner and tools 3,045 ft.

Park Bowser et als' No. 1 Cowart, second hole, Sec. 2-12-19 ..... S.D. 30 ft.

**RANKIN COUNTY**

Home Oil Prod. Co.'s No. 1 E. P. Rainey, NW NW Sec. 13-5-1e ..... Claim show gas 2,912 ft.; recmtd. 10-in. casing for test.

**WARREN COUNTY**

El Dorado Oil Co.'s No. 1 Dornbush, Sec. 8-18-5 ..... Drlg. 2,400 ft.

**YALOBUSHA COUNTY**

Phillip Bros.' No. 1 James, Sec. 20-11-5 ..... Coring 3,420 ft.

Carter Oil Co. and J. D. Collett's No. 1 Blackmur, 330 ft. S, 990 ft. W, C Sec. 14-11-4 ..... Rigging up.

**YAZOO COUNTY**

Amerada Pet. Co.'s No. 1 Doherty, SW SW Sec. 24-12-2 .. Location.

**TENNESSEE**

**DECATUR COUNTY**

Chester County Oil Co.'s No. 1 Montgomery ..... Cmtd. 6-in. 1,040 ft.; drlg. hard gray lime 1,165 ft.

**ALABAMA**

**CHOCTAW COUNTY**

Robinson & Greer's No. 1 Douglas Oil Co., 320 ft. N, C Sec. 15-19-2 ..... Coring 3,400 ft.

**LAMAR COUNTY**

Briggs & Knapp's No. 1 Wefel, Sec. 25-12-14 ..... Reaming to bottom; T.D. 1,130 ft.

**MARION COUNTY**

Hobson and others' No. 1 John Clark, SE Sec. 29-11-14 Drk. pattern.

**SUMTER COUNTY**

B. W. Bates' No. 1 fee, Sec. 3-18-1 ..... U.R. surface csg. at 300 ft.; to set 6-in.

**WASHINGTON COUNTY**

S. A. Hobson's No. 1 Hobson Bros., Sec. 9-8-2 ..... S.D.; S.W. flow at 1,450 ft.

S. A. Hobson's No. 1 Wilson, Sec. 27-7-1 ..... S.D. 700 ft.

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## FIELD INSPECTION OF PROTECTIVE COATINGS

(Continued from Page 104)

express the superiority of Division 2 in a quantitative way.

That there is an advantage to be gained by the use of each additional ply in wrapping is indicated in the figures of Table 3, but these figures must not be understood to represent the quantitative advantage of each additional ply in wrapping, since the data for the three groups are not strictly comparable. It will be noted that the average ages for the three types of coatings in Division 2 are quite different, although the average soil qualities are nearly the same.

One other matter of importance should be noted in connection with the figures for average age and "average soil quality" which have been used to interpret the data presented: For a given number of inspections the per cent of these showing corrosion may vary widely for the same average age. It is obvious that the distribution or "spread" of the figures from which the average was calculated has some importance. However, with an increase in the number of figures entering into the average, this difficulty becomes of less importance. Since trends in the behavior of the coatings only have been considered in this report, the data may be considered sufficiently accurate for the purpose.

### Soil Action

In so far as the inspections reported in this investigation are concerned, there appears to be no geographical limitation of soil action. However, an apparent difference in the amount of distortion of coatings has been noted in Missouri and Illinois as compared to Oklahoma and, in particular, Texas. Coatings which are in continually wet soils do not show much distortion or soil action; and similarly, coatings which are in very dry soil, or soils which are not subject to frequent drying and rewetting, do not show as much distortion as do those which are subjected to alternate extreme dryness and saturation with water. This latter condition is the one which prevails at Spindle Top Gulley, Texas.

Much of the distortion which results to a coating is thought to be due to the settling of the backfill. But this is by no means the whole story. In the southern part of Oklahoma, one enamel treatment, nearly two years old and buried about 38 inches deep, suffered only slight distortion. The pipe was 16 inches in diameter. If the backfill was entirely responsible for the distortion of the coating, an effect would certainly have been noted in this case. However, this particular stretch of coated pipe was located in a low spot, and it was necessary to remove the water from the bell hole in order to inspect the coating. It is claimed that this soil never dries, which in all probability accounts for the absence of distortion.

A number of interesting attempts have been made recently to overcome the effect of soil action in its various ramifications. The practice of wrapping the enamels and other distortionable coatings with a loose wrap of fabric, sheet iron, wood veneer, aluminum foil, etc., in order to expend the settling energy of the soil and to prevent the soil from adhering to the coating, has increased. Such coatings, however, have not been in service sufficiently long to determine what advantage is gained from this practice. The effect of the loosely wrapped fabric is to minimize the distortion of the coating by "flattening" sharp points of stress due to clods, rocks, etc. Enamels invariably take the print of the covering material, and in the case of the fabrics usually result in an undulating surface, the valleys of which are often quite thin. One or two cases of direct corrosive attack have been noted in the depressed areas.

### Effect of Protective Coatings on Pitting Rate

It is reasonable to expect on a theoretical basis that, owing to the electrochemical nature of corrosion, the pitting rate may be substantially increased over that normally expected in a given soil if the pipe is covered with an imperfect or partially disrupted coating, because of the localization of the effect. The data favoring this contention are meager, but significant. The recently investigated pipe line currents, arising presumably from large galvanic cells, suggest the possibility of an increase in the pitting rate on ineffectual or partially disrupted coatings.

K. H. Logan has found that out of 30 pipe nipples coated with the same coal tar material and buried in 30 different locations for about four years, six of these, or 20 per cent, showed a pitting rate considerably in excess of that on corresponding bare pipe specimens. Of the 30 locations, three showed no pitting on either the bare or coated pipe. If these three cases are omitted, the percentage is 22.2. These percentages are a little higher than would be expected from chance. An opportunity was afforded in this series of inspections to compare three different coatings of the same age applied to three parallel lines, close to the location where the Bureau of Standards' specimens are buried, south of Bunkie, La. The soil is Miller clay. The lines with the treatments which were applied to them, and the depth of the five deepest pits measured, are listed below in Table 6. These coatings were applied a little over five years prior to the time of inspection.

**TABLE 7—BUREAU OF STANDARDS' CORROSION DATA FOR MILLER CLAY***

| | First period 1.95 yrs. | Second period 4.05 yrs. | Third period 8.96 yrs. |
|---|---|---|---|
| Avge pit depth (mils) .. | | 26.4 | 27.0 |
| Maximum pit (mils).. 20 | | 44.0 | 75.0 |

*Cast iron specimen not included.

Table 7 shows the corrosion results obtained by the Bureau of Standards on a large number of samples for three burial periods: 1.95, 4.05 and 5.96 years. It will be observed that the pitting that was found on the coated lines is very much greater in two cases than would be expected from a consideration of the Bureau of Standards' measurements. The hypothesis that weak or poorly applied coatings may accelerate the pitting rate appears to find justification in this data. However, this single case is insufficient to warrant any definite conclusions. Too many cases have been observed where the pitting rates on two parallel lines have been entirely different. Full acceptance of the data as presented would indicate a preference in the coating material, but this preference is likewise an untenable conclusion. It cannot even be said that the protective coatings have been of small value, since the pitting rate on a comparable uncoated pipe is not known.

The question as to the extent of protection afforded a pipe line by the application of a given protective coating is an important one, but unfortunately difficult to answer. It has often been noted that pitting on a pipe, both as to depth and character, is at least partially characteristic of the soil. It is not unreasonable to suppose, therefore, that if soil contact accounts for the characteristic corrosion patterns which are obtained in certain soils, a protective coating might considerably alter the extent and character of the pitting on this pipe.

### The Ideal Protective Coating

Without regard to chemical stability or moisture impermeability, the ideal coating must have certain fundamental mechanical properties. Most failures of coatings to prevent corrosion of the pipe are due to some form of soil action. Ordinarily, reinforced cold or hot applications lack sufficient mechanical strength to resist this soil action.

Both coal tar and asphalt base materials have been filled with finely divided mineral filters, resulting in harder materials known as "enamels." The filler supplies a part of the mechanical deficiency of the base materials.

The virtue of fabrics does not lie in their ability to prevent the infiltration of corrosive agents to the pipe, but in the strength or partial solidity which they afford a coating to resist mechanical distortion. Wrapped coatings are subject to a redistribution of the coating material around the pipe immediately after the trench is backfilled, but they have the property of lengthening the time in which the coating is reduced in thickness to a point where corrosion may occur. The greater the number of wraps incorporated in a given treatment, the greater the possibility of increasing the time before the coating is dangerously reduced in thickness. An interesting example of the redistribution of the bituminous material of a fabric wrapped treatment, after some service in the ground, is the following case of a three-ply wrapped treatment on an 8-inch line. The coating had been in service underground for about two and a half years. Measurements showed the following distribution on the coating with respect to thickness:

Top, 3/8 inch.
Sides 3/4 inch to 7/8 inch.
Bottom 1/8 inch to 1/4 inch.

The ideal coating would be one which had sufficient mechanical strength to resist any material reduction in thickness and remain uniformly distributed around the pipe, irrespective of any distorting action of the soil. This should, of course, go hand in hand with a suitable bond to the metal and sufficient elasticity to provide for whatever expansion or contraction may occur in the pipe. Such an ideally simple coating is not at present available. Mastics, or highly filled bituminous materials, offer the possibility of satisfying the requirements of the ideal coating; but before such may become universally applicable, cost must be within reason and application practical.

### Summary and Conclusions

1. The data presented indicate that, for a number of random inspections, the percentage of these inspections in which corrosion was found to have occurred on the pipe subsequent to the application of the coating is related: (a) to the types of coatings included in the number of random inspections, (b) the age distribution of the coatings, and (c) the distribution of the inspections with respect to soil qualities. Other factors affect the per cent "corroded" figure, but seem to be of secondary importance. It is apparent, therefore, that a statement as to the condition of a given coating is not complete with respect to its behavior without a knowledge of the age of the coating and the soil quality.

The data are too meager to have much quantitative significance. In order to establish a mathematical relation between the various significant factors and the ability of coatings to prevent corrosive attack on the pipe, a more careful selection of inspections, and many times the number herein reported, would be required. Trends have been fairly definitely established, however, and the data may be accepted as yielding reliable conclusions insofar as they have been reached.

### Field Experiments

A more logical method of obtaining the specific information desired would be to conduct suitably controlled field experiments. For example, if a number of coatings were applied to operating pipe lines under different conditions, application difficulties would be avoided; the types of coatings involved could be limited, and would be identical under the different soil conditions and periods of service; the ages for all coatings would be equal, and the soil qualities could be definitely selected or established. Disruption of the coating, extent and character of corrosion, depth of pitting, etc., could be put upon a more quantitative basis, thus enlarging the scope of data obtainable from field inspections. Such a series of tests has been suggested before, and the suggestion has been very favorably received in the industry.

2. The causes of failure are numerous, but most important are soil action, faulty application, and careless handling, and such miscellaneous factors as loss of bond between the coating and the pipe, material disintegration, etc. By far the greater percentage of the inspections, where the coating was unable to maintain the pipe corrosion-free, is caused by some form of mechanical disruption of the coating.

3. So far as the data presented are concerned, the coating types may be considered in two large divisions. Division 1, which includes all coatings composed of paints, primers, bituminous materials applied hot, cutback bituminous materials, greases, enamels, emulsions with and without cement, and some of the above wrapped with thin woven fabrics —is less able, as a whole, to prevent corrosion occurring on the pipe than Division 2, which includes coatings employing one or more plies of saturated fabrics of the roofing felt type, cemented together with hot or cold applied bituminous materials or greases.

4. One enamel appears more able to prevent corrosion occurring on the pipe than the other members of Division 1, but the performance of this coating is not sufficiently outstanding to warrant separating the inspections on it from Division 1.

5. Irrespective of the corrosiveness of the soil, the speed with which coatings in Division 1 break down to a point where corrosion starts is so great that it cannot be expected that repairs and replacements will be eliminated by the use of the coatings in Division 1 is highly corrosive soils. The use of the coatings in Division 1 may postpone the normal time and extent of repairs and replacements more than sufficiently to justify economically the application of the coating, but prolonged freedom from trouble on the line cannot be anticipated.

6. Whereas numerous locations of the coatings inspected in this report have been selected in highly corrosive soils with a view to determining the maximum protective effect of the coating, the distribution tables show that the greater percentage of the inspections—so far as could be determined—were in fair to excellent soils. While in themselves these data have little significance, they are qualitatively in accord with practical experience. The combined experience of operating companies has shown that a very small portion of all pipe lines lies in highly corrosive soil.

### An Open Question

7. Evidence, which may be utilized in determining whether or not imperfect or partially disrupted coatings favorably or adversely affect the normal pitting rate of a given soil, is difficult to obtain in the field. This important question must be considered an open one.

8. It is not feasible to determine from field inspections what prolongation of pipe life may be expected from any particular treatment. Unfortunately, no quantitative measure of the importance or extent of corrosion is at present available, and not enough is known of the relation between the extent of corrosion and the economic value of the coating.

9. The data are too meager to determine a preference in cementing material for coatings included in groups 8, 9 and 10; but since out of the 13 inspections of coatings in groups 8 and 9 employing cutback bituminous cementing materials 84.6 per cent of these showed the pipe to be corroded, and since out of the 60 coatings in these groups employing hot cementing materials 53.3 per cent showed the pipe to be corroded, it may be concluded that hot cementing materials are more satisfactory than cold cementing materials. The average ages and "average soil qualities" are as follows: Cold, 3.09 and 17.3; hot, 4.79 and 20.2.

**TABLE 6—PIT DEPTHS ON THREE DIFFERENTLY COATED PARALLEL LINES AFTER FIVE YEARS IN MILLER CLAY**

| Line | Treatment | Pits in mils* | | | | |
|---|---|---|---|---|---|---|
| No. 1—8-inch | Primer; 2 enamel | 25, | 30, | 35, | 45, | 47 |
| No. 2—8-inch | Grease | 40, | 45, | 77, | 98, | 100 |
| No. 3—8-inch | Primer; asphalt | 52, | 55, | 56, | 130, | 139 |

*A mil is 0.001 inch.

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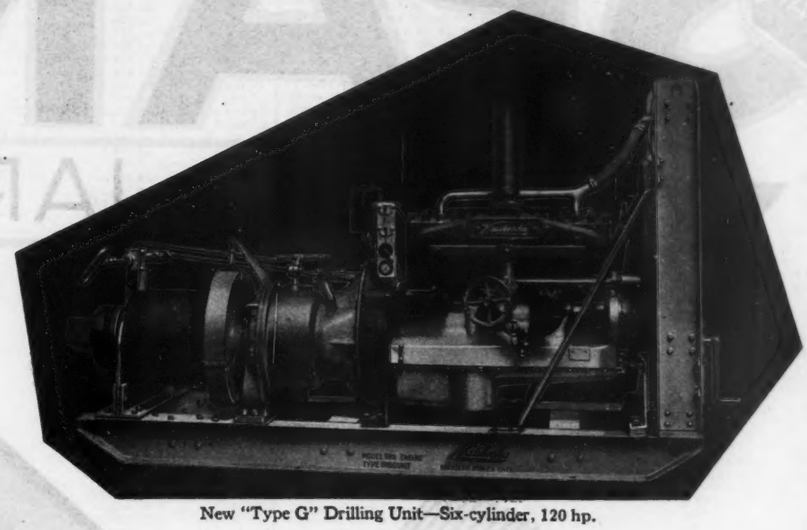

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# Texas Gross Production, Third Quarter 1929

The gross crude oil production of Texas of the companies making reports for the third quarter of 1929 is given below. The record is made up from the reports filed with the state comptroller.

A

| Name and address— | Barrels | Value |
|---|---|---|
| Amicable Life Insurance Co., Waco, (March 31, 1929) | 272.00 | 380.80 |
| Amicable Life Insurance Co., Waco, (June 30, 1929) | 208.00 | 291.20 |
| Atlantic Keystone Petroleum Co., Allaun, William E., Bolivian Petroleum Co. (June 30, 1929), Fort Worth | 1,670.33 | 1,336.25 |
| Argus Oil Co., Inc., Brownwood | 692.23 | 870.29 |
| Atlas Oil Corp., Humble | 2,368.00 | 3,078.00 |
| Arkansas Fuel Oil Co., Shreveport, La. | 29,051.00 | 46,825.10 |
| Acorn Oil Co., Beaumont | 9,875.42 | 12,644.36 |
| Arab Gasoline Corp., Eastland | 5,403.72 | 5,403.72 |
| Amicable Life Insurance Co., Waco | 379.00 | 530.60 |
| Abraham, Earl, Bridgetown | 469.02 | 787.82 |
| Ama-Gray Oil Co., Amarillo | 4,239.46 | 6,014.90 |
| Anderson, Mac T., Rising Star | 726.61 | 1,129.07 |
| American Refining Properties (M.J.B.), Wichita Falls | 3,120.36 | 4,892.29 |
| American Refining Properties (R.M.W.), Wichita Falls | 1,978.00 | 3,062.96 |
| American Refining Properties, (N.B.C.), Wichita Falls | 1,279.14 | 2,070.46 |
| Alworth Stevens Hild Co., New York | 1,536.40 | 1,384.10 |
| Ashe Syndicate, The, Fort Worth | 1,017.20 | 1,540.54 |
| Alamosa Oil Co., Amarillo | 24,437.56 | 23,132.46 |
| A. & P. Production Co., Houston | 37,842.88 | 46,965.40 |
| American Maracaibo Co., New York, N. Y. | 269,423.55 | 273,779.82 |
| American Refining Properties, (W.M.P.), Wichita Falls | 8,533.68 | 12,544.50 |
| Adams, Dr. W. B., Wichita Falls | 475.99 | 749.68 |
| Ada Belle Oil Co., Batson | 20,990.73 | 26,918.12 |
| Amarillo Oil Co., Amarillo | 1,281.44 | 1,345.51 |
| Andrews, W. R. et al, Dallas | 1,171.12 | 1,768.49 |
| American Central Oil & Gas Co., San Antonio | 347.35 | 360.76 |
| Alaska Petroleum Co., Amarillo | 1,488.37 | 2,009.36 |
| Artex Oil Co., Wichita Falls | 1,431.97 | 2,243.67 |
| Antelope Creek Oil & Gas Co., Amarillo | 9,639.02 | 8,798.41 |
| Anchor Oil Co., Dallas | 1,017.83 | 1,519.99 |
| Ascot Co., Wichita Falls | 7,362.56 | 12,962.26 |
| Atkinson & Sandefer Oil Corp., Breckenridge | 11,570.78 | 17,647.30 |
| American Refining Properties, Wichita Falls | 46,148.29 | 61,558.26 |
| Apple-Brandeberry Oil Co., et al, Wichita Falls | 14,604.74 | 22,154.03 |
| Ailes, J. W., Wichita Falls | 547.50 | 881.47 |
| All-American Oil & Gas Co., Oklahoma City, Okla. | 37.80 | 55.75 |
| Aarco Oil & Gas Co., Baltimore, Md. | 8,774.01 | 14,591.38 |
| Adams & Prince, Amarillo | 17,529.32 | 25,177.09 |
| Adams & McGahey & Osborne, Amarillo | 862.20 | 610.55 |
| Arco Oil Co., Wichita Falls | 16,424.22 | 18,594.86 |
| Arnold, J. L., et al, Eastland | 1,001.44 | 1,251.31 |
| Atlantic Producing Co., Dallas | 922,422.77 | 867,093.63 |
| Archer Drilling Co., Wichita Falls | 8,264.08 | 13,371.28 |
| Abercrombie, J. S., Co., Houston | 87,600.38 | 109,980.66 |
| Amerada Petroleum Corp., Tulsa, Okla. | 361,127.15 | 362,348.81 |
| Adamson, Peter, Tulsa, Okla. | | 820.19 |

B

| | | |
|---|---|---|
| Barkley & Conway, Ranger | 8,904.31 | 15,880.33 |
| Barkley & Gholson, et al, Ranger | 329.12 | 469.05 |
| Barkley & County, Ranger | 3,916.95 | 6,084.46 |
| Barkley, Crotty, Six & Little, Ranger | 868.62 | 1,231.16 |
| Beaver Oil Corp., Oklahoma City, Okla. | 7,808.00 | 9,865.02 |
| Blue Bonnet Petroleum Corp., Somerset | 801.34 | 993.45 |
| Brain, Mrs. M. L., Humble, (April 1 to September 30, 1928) | 609.24 | 791.99 |
| Brain Brothers, Humble, (September 30, 1928) | 394.07 | 453.17 |
| Bryson Oil & Gas Co., San Angelo, (December 31, 1928) | 6,129.00 | 9,990.27 |
| Bryson Oil & Gas Co., San Angelo, (March 31, 1929) | 21,541.00 | 32,526.91 |
| Bryson Oil & Gas Co., San Angelo, (June 30, 1929) | 16,913.00 | 25,538.63 |
| Boyzen, B. S., et al, Brownwood | 143.58 | 143.58 |
| Brazo Oil Co., Houston (Jan., 1927, to June 30, 1929) | 35,974.45 | 43,739.10 |
| Bailey, Carl B., Wichita Falls | 7,330.12 | 11,994.79 |
| Bell, E. S., Wichita Falls | 4,482.10 | 7,412.90 |
| Beasley Production Co., Electra | 713.12 | 1,144.98 |
| Bartlett Production Co., Rockdale | 1,008.01 | 1,472.38 |
| Bowman Oil Co., Rockdale | 723.54 | 1,078.08 |
| Brown Farm Oil Co., Wichita Falls | 6,256.40 | 10,635.55 |
| Bass & Dillard, Wichita Falls | 6,176.04 | 9,449.65 |
| Brownwood Producing & Refining Co., Brownwood | 1,390.78 | 2,051.36 |
| British American Oil & Gas Co., Tulsa, Okla. | 621.36 | 923.59 |
| British American Oil & Gas Co., Tulsa, Okla. | 6,443.89 | 10,495.25 |
| Buell & Hagan, San Angelo | 865.00 | 778.50 |
| Black, W. A., Midland | 1,012.08 | 1,265.10 |
| Bluebonnet Oil Co., Wichita Falls | 914.08 | 1,490.74 |
| Bevering, A. H., et al, Henrietta | 1,965.44 | 2,948.12 |
| Biel, William N., Van Ormy | 40.00 | 52.00 |
| Brownlee-Pope Oil Co., Austin | 2,292.32 | 3,450.96 |
| Biggs Oil & Gas Co., McKinney | 955.58 | 1,619.76 |
| Bullington, Lee, Pendleton & Bullington, Wichita Falls | 14,867.90 | 23,581.19 |
| Bailey, Mrs. Fannie, Wichita Falls | 1,281.35 | 2,003.81 |
| Burns, L. T., Wichita Falls | 47,771.04 | 79,268.59 |
| Bullington-Clark et al, Wichita Falls | 4,812.20 | 5,119.74 |
| Baird Oil Co., Putnam | 201.76 | 312.72 |
| Boller, C. W., Wichita Falls | 5,239.06 | 8,576.62 |
| Baker, James Blair, Jr., and C. F. Camp, Tr., Wichita Falls | 5,161.92 | 7,654.61 |
| Brown, Dr. E. W., Estate, Orange | 842.35 | 1,106.04 |
| Baker, James Blair, Jr., and C. F. Camp, Tr., Wichita Falls | 40,428.74 | 58,597.41 |
| Brown, Mrs. Carrie L., et al, Orange | 18,129.09 | 23,567.79 |
| Borealis Oil Co., Oklahoma City, Okla. | 3,165.74 | 5,066.57 |
| Bynum, W. W. Estate, Rockdale | 925.30 | 1,378.68 |
| Big Lake Oil Co., Pittsburgh, Pa. | 1,086,767.69 | 1,474,273.78 |
| Bailey, Fannie, Wichita Falls | 177.16 | 289.45 |
| Barbara Oil Co., Oklahoma City, Okla. | 5,923.10 | 10,685.16 |
| Black Cat Oil Co., Electra | 870.58 | 1,319.10 |
| Baker, Mollie B., and Fred R., Breckenridge | 1,254.00 | 1,818.30 |
| Baker, J. F., Breckenridge | 1,776.00 | 2,486.40 |
| Baker, J. A. and Mollie B., Breckenridge | 7,578.00 | 10,609.20 |
| Brooks & Hanlon, Inc., Tulsa, Okla. | 711.32 | 971.26 |
| Big Indian Oil & Development Co., Gainesville | 1,005.29 | 1,658.73 |
| Bashara, J. F., Houston | 6,057.41 | 7,874.61 |
| Boardman & Ulrich, Corsicana | 908.66 | 1,363.00 |
| Beggs, George Strip, Fort Worth | 2,710.91 | 4,956.48 |
| Burton McKee Oil Corp., Strawn | 820.78 | 1,206.83 |
| Britton & Gordon, Strawn | 534.50 | 878.77 |
| Bridwell & Heydrick, Tr., Wichita Falls | 2,094.00 | 3,484.18 |
| Bridwell Oil Co., Wichita Falls | 75,153.82 | 103,809.56 |
| Bonner Co., The, Wichita Falls | 13,643.11 | 22,048.48 |
| Barnes, J. B., Electra | 6,582.90 | 9,348.56 |
| Brown & Lickey, Wichita Falls | 800.40 | 1,265.47 |
| Badger Oil Co., The, Amarillo | 13,972.03 | 21,036.03 |
| Bexata Oil Co., San Antonio | 1,332.75 | 1,659.15 |
| Brazos River Gas Co., Wichita Falls | 239.83 | 417.33 |
| Brown & Guinn, Wichita Falls | 362.52 | 594.26 |
| Blair & Kell, Dallas | 368.96 | 479.64 |
| Beaver Oil Corp., Oklahoma City, Okla. | 7,808.00 | 9,865.02 |
| Bradstreet, The I. G. Co., Fort Worth | 51,663.00 | 80,974.85 |
| Breckenridge Gasoline Co., Toledo, Ohio | 29.18 | 33.55 |
| Butler, F. E. et al, Olney | 956.96 | 1,421.70 |
| Bartlett, William & Co., Electra | 376.45 | 638.02 |
| Bourbon Royalty Co., Dallas | 2,587.54 | 3,429.24 |
| Buttram Petroleum Corp., Oklahoma City, Okla. | 80,702.78 | 77,184.90 |
| Bridwell & Mayfield, Wichita Falls | 5,436.32 | 9,189.15 |
| Bohner, Crenshaw & Whitehill, C. J. Bohner Oil Corp., and C. J. Bohner, et al, Burkburnett | 24,007.10 | 36,738.41 |
| Brown, A. J., Fort Worth | 900.32 | 1,447.00 |
| Burton, C. P., et al, Wichita Falls | 30,329.30 | 46,374.04 |
| Bell Oil & Gas Co., Tulsa, Okla. | 27,232.11 | 34,009.67 |
| Benedum-Trees Oil Co., Pittsburgh, Pa. | 35,268.32 | 24,687.82 |
| Baldwin, F. C., et al, Fort Worth | 1,687.56 | 2,828.27 |
| Big State Oil Corp., Dallas | 3,381.68 | 5,075.82 |
| Burkburnett Production Oil Trust, Baltimore, Md. | 574.08 | 931.80 |
| Bynum & Palmer, Rockdale | 155.09 | 237.29 |
| Barnsdall Oil Co., Tulsa, Okla. | 35,277.43 | 50,956.01 |
| Barkley & Meadows, Wichita Falls | 81,192.97 | 123,162.18 |
| Birk, C. E. and C. L. Kelley, Iowa Park | 157.52 | 236.28 |
| Burke-Greis Oil Co., Tulsa, Okla. | 2,328.95 | 3,395.13 |
| Braden Co., Eastland | 16,199.52 | 28,196.53 |
| Baker & Pardue, Breckenridge | 2,275.00 | 3,594.33 |
| Bohner, C. F., Kansas City, Kan. | 62.15 | 86.38 |
| Beams, Drew, Okmulgee, Okla. | 1,289.31 | 1,998.40 |
| Brannon & Murray, Cisco | 2,974.00 | 4,839.75 |
| Buttram, Frank, Oklahoma City, Okla. | 3,879.18 | 6,000.82 |
| Briggs, R. F. et al, Corsicana | 37.63 | 52.69 |
| Bruce, A. D., Brownwood | 550.37 | 731.92 |
| Black Diamond Oil Co., Amarillo | 555.74 | 689.95 |
| Barkley & Meadows, Wichita Falls, (June 30, 1929) | 49,787.94 | 70,500.59 |
| Barkley & Meadows et al, Waggoner D. lease, Wichita Falls (June 30, 1929) | 3,760.98 | 4,824.78 |
| Barkley & Meadows et al, Waggoner C. Lease, Wichita Falls (June 30, 1929) | 20,650.84 | 26,821.01 |

C

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|---|---|---|
| Central Texas Refining Co., Corsicana | 14,614.24 | 22,126.05 |
| Cesaux & Martin, Humble, (January 1, 1929 to June 30, 1929) | 10,113.29 | 12,391.84 |
| Campbell, R. S., Humble (December, 1928 to June 30, 1929) | 1,653.23 | 2,012.07 |
| Corsicana Oil & Refining Co., Corsicana (March 31, 1929) | 5,500.00 | 3,355.00 |
| Corsicana Oil & Refining Co., Corsicana, (June 30, 1929) | 6,200.00 | 3,756.73 |
| Caltex Oil Co., Spokane, Wash. | 317.12 | 336.14 |
| Church & Weekly, Fort Worth | 26,670.66 | 22,173.62 |
| Cowling & Newell Oil Co., Burkburnett | 312.26 | 509.04 |
| Clay, J. D., Houston | 1,648.21 | 1,960.62 |
| Cable, J. H., Wichita Falls | 1,095.66 | 1,753.04 |
| Columbia Petroleum Co., Mirando City | 8,290.00 | 7,461.00 |
| Craig & Lowrie, Pittsburgh, Pa. | 1,432.54 | 1,740.86 |
| Chenault, W. L., Amarillo | 543.61 | 876.06 |
| Canary, S. C., et al, Tulsa, Okla. | 399.62 | 618.83 |
| Culbertson Co., Wichita Falls | 12,610.83 | 20,850.63 |
| Callihan George, and Carter Development Co., Albany | 1,259.00 | 1,752.96 |
| Chapman, O. H., Waxahachie | 214.25 | 289.25 |
| Cashdollar & Snyder, Brownwood | 170.76 | 213.45 |
| Camp Oil & Gas Co., Wichita Falls | 1,131.96 | 1,751.39 |
| Canyon Oil & Gas Co., Cross Plains | 2,708.79 | 3,948.35 |
| Cox, Edwin B., Ardmore, Okla. | 2,261.78 | 3,589.62 |
| Clark, R. R., Wichita Falls | 14,887.10 | 24,498.92 |
| Clear Lake Oil Co., Rockdale | 1,161.64 | 1,730.82 |
| Cuno, Mrs. Bertha, Moran | 1,684.49 | 2,463.75 |
| Cunningham Production Co., Houston, (January 1, 1929 to September 30, 1929) | 15,049.39 | 16,826.92 |
| Cunningham & Bratcher, Loving | 1,162.02 | 1,431.51 |
| Continental Oil Co., Ponca City, Okla. | 2,736,430.81 | 3,147,137.46 |
| Crown Central Petroleum Corp., Houston | 49,658.70 | 44,692.83 |
| Carey, W. S. et al, Wichita Falls | 779.02 | 1,090.63 |
| Carey, E. S., et al, Wichita Falls | none | none |
| Clark-Buffalo Oil Co., Inc. Buffalo, N. Y. | 995.80 | 1,531.78 |
| California Co., (The), Dallas | 1,977,513.00 | 1,841,503.40 |
| Crown Oil & Refining Co., Houston | 11,790.07 | 15,327.09 |
| Connell-Nixon-Frazier, Eldorado, Kan. | 1,407.59 | 1,801.72 |
| Cunningham, E. J., et al, Coleman | 12,777.22 | 15,569.34 |
| Cushing Refining & Gasoline Co., Cushing, Okla. | 6,944.04 | 6,527.39 |
| Crabb & McNeel, San Angelo | 3,731.50 | 5,278.74 |
| Christie Brothers, Wichita Falls | 7,035.57 | 11,260.35 |
| Campbell, Alma, Fort Worth | 1,300.45 | 2,013.19 |
| Central Oil Co., Cameron | 3,777.55 | 4,862.01 |
| Cole, W. C., Wichita Falls | 1,793.61 | 2,823.89 |
| Chestnut & Smith Corp., Tulsa, Okla. | 5,718.16 | 8,932.54 |
| Coffield & Hale, Rockdale | 1,963.73 | 2,906.32 |
| Chandler, C. B., Jacksboro | 1,236.79 | 1,607.82 |
| Cockrell-McIlroy Oil Co., Amarillo | 118,281.87 | 181,500.06 |
| Capitol Oil Co., Orange | 904.90 | 1,176.37 |
| Clem Oil Co., Houston | 591.14 | 591.14 |
| Cromwell, Carl G., San Angelo | 7,752.29 | 6,992.92 |
| Cranfill Brothers Oil Co., Dallas | 90,816.93 | 78,359.29 |
| Cornhusker Oil Co., Lincoln, Neb. | 2,039.45 | 1,835.50 |
| Castlebury, S. A., Vernon | 215.58 | 312.59 |
| Cosden Oil Co., Fort Worth | 277,558.78 | 273,219.99 |
| Crosscut Corp, The, Fort Worth | 1,076.81 | 1,841.96 |
| Camel Oil Co., The, Pampa | 10,469.68 | 17,656.19 |
| Chapman, P. A., estate, Waxahachie | 14,165.10 | 20,572.51 |
| Consolidated Oil Co., Wichita Falls | 88,926.39 | 130,071.07 |
| Collier, J. W., & Mable Collier, Markley | 289.74 | 383.96 |
| Cranfill Bros. Oil Co., Wichita Falls | 4,203.06 | 7,059.22 |
| Curry, E. M., Cross Plains | 1,540.93 | 2,655.73 |
| Cullen, H. R., et al, Houston | 10,743.99 | 13,000.23 |
| C. W. M. & T. Co., Wichita Falls | 607.92 | 1,005.45 |
| Cranfill-Reynolds Co., Dallas | 278,078.83 | 307,279.56 |
| Curtis, J. A., Wichita Falls | 1,630.83 | 2,688.18 |
| Champlin Refining Co., Enid, Okla. | 117,849.18 | 157,981.83 |
| Crosbie, J. E., Inc., Tulsa, Okla. | 10,268.48 | 12,124.60 |
| Collins, J. L., & Co., Corsicana | 698.45 | 1,026.15 |
| Carlin & Tobin, Ranger | 496.00 | 858.08 |
| Carlin, W. W., Ranger | 1,634.00 | 2,859.50 |
| Carter, Roy I., Wichita Falls | 20,347.23 | 21,861.40 |
| Charter Oil Co., Brownwood | 14,643.88 | 23,589.48 |
| Campbell, R. S., Humble | 764.23 | 932.95 |
| Cezeaux & Martin, Humble | 3,274.41 | 4,256.72 |
| Continental Supply Co., The, St. Louis, Mo. | 403.49 | 579.12 |
| Crenshaw, Albert, Wichita Falls | 1,784.58 | 2,850.53 |
| Coaden, J. S., Inc., Fort Worth | 4,159.37 | 6,206.22 |
| Cisco Oil Co., Tulsa, Okla. | 24,010.90 | 32,481.00 |
| Cohen, Aaron, Baltimore, Md. | 7,037.06 | 12,055.72 |
| Carey, C. W., Wichita Falls | 4,421.62 | 6,482.09 |
| Culbertson Bros. Co. and Coverette Oil Corp., Fort Worth | 8,354.72 | 8,324.65 |
| Connor Sons & Cloughley, Gotebo, Okla. | 11,743.00 | 19,401.78 |
| Center Field Oil Co., Amarillo | 404.88 | 425.12 |
| Cal Tex Oil Co., Spokane, Wash. | 220.59 | 263.69 |
| Caruthers Co., San Antonio | 1,568.04 | 1,845.12 |
| Conway Bros., Ranger | 2,135.74 | 3,838.46 |
| Conway Bros. & Champion, Ranger | 1,210.41 | 1,577.50 |
| Conway Bros. & Woodson Oil Co., Ranger | 1,786.09 | 2,598.16 |
| Coppock & Coleman, Iowa Park | 12,291.00 | 19,898.51 |
| Chalk, Otis, Big Spring | 5,141.16 | 4,842.26 |
| Currie Oil Corp., Washington, D. C. | 535.92 | 884.27 |
| Clarkson, Wm., Jr., Corsicana | 3,740.62 | 5,818.98 |

D

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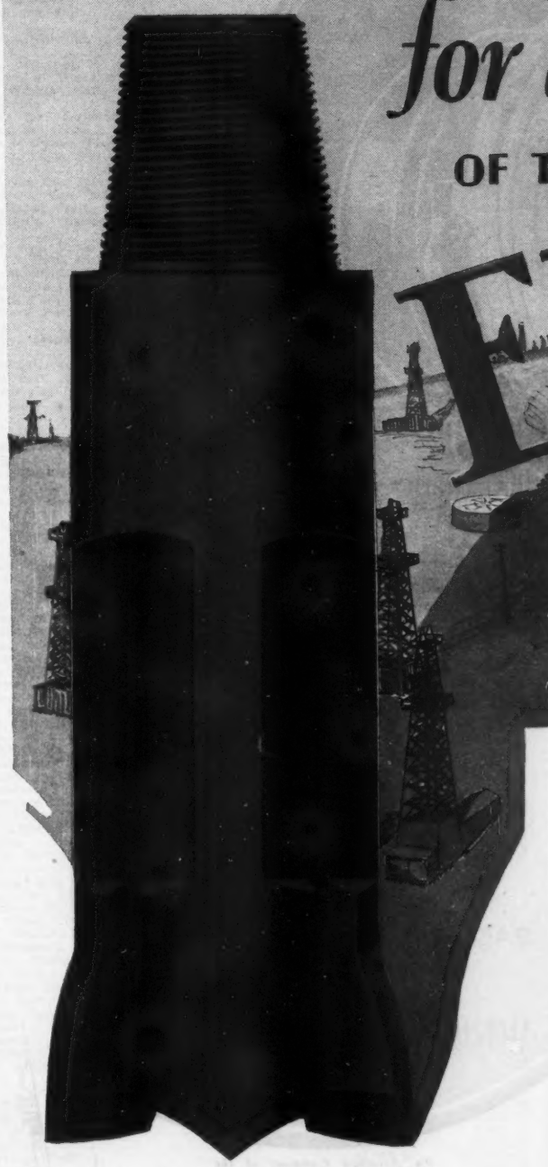
|---|---|---|
| Den-Wich Oil Co., Abilene, (3-31-29) | 1,133.74 | 1,491.88 |
| Den-Wich Oil Co., Abilene, (6-30-29) | 1,048.94 | 1,550.89 |
| Den-Wich Oil Co., Abilene, (12-31-28) | 1,345.67 | 1,959.93 |
| Deaner, J. J., Okmulgee, Okla., (6-30-29) | 337.24 | 465.76 |
| Deutser, B., trustee, Beaumont | 2,249.32 | 2,923.99 |
| Duffield & Howard Oil Co., Tulsa, Okla. | 516.58 | 578.28 |
| Dale, Jack B., Wichita Falls | 2,711.48 | 4,473.94 |
| Dale & Crawford, Electra | 629.37 | 1,014.70 |
| Dixie Drilling Co., Inc., Fort Worth | 33.40 | 48.43 |
| Dye & Gillette, Tulsa, Okla. | 9,259.64 | 15,159.76 |

| Name and address— | Barrels | Value |
|---|---|---|
| Dyck Oil Co. of Texas, Tulsa, Okla. | 251.02 | 231.32 |
| Developers Oil & Gas Co., Wichita Falls, (6-30-29) | 776.00 | 1,154.34 |
| Developers Oil & Gas Co., Wichita Falls, (9-30-29) | 619.80 | 1,023.75 |
| Dull-Earle Texas Co., Albany | 28,626.29 | 45,670.11 |
| Dallas Petroleum Co., Houston | 725.27 | 1,272.46 |
| Dominion Oil Co., Tulsa, Okla. | 1,111.92 | 1,661.93 |
| Dunigan, et al, Pampa | 1,214.69 | 1,457.57 |
| Dunn, G. C., Dallas (receiver for California-Eastern Oil Co. & Julian Pet. Corp.) | 4,902.76 | 4,831.50 |
| Danciger Oil & Refining Co. of Texas, Fort Worth | 345,048.28 | 519,789.65 |
| Douglas Brothers Oil Co., Electra | 2,787.01 | 3,975.04 |
| Dixie Oil Co., Inc., Shreveport, La. | 90,105.60 | 78,213.71 |
| Davis Oil Corp., The, Vernon | 6,[illegible] | [illegible] |
| Dale-Dnotts Oil Co., Wichita Falls | 294.67 | 486.19 |
| Dayton Oil Co., Dayton | 127.10 | 165.23 |
| Dennie, J. S., Moran | 1,634.40 | 2,507.23 |
| Dunaway, J. E., et al, Wichita Falls | 12,565.89 | 18,568.34 |
| Dunigan Brothers, Breckenridge | 259.75 | 876.64 |
| Dillon Glasscock Co., San Antonio | 471.99 | 566.32 |
| Double Five Oil Co., Amarillo | 1,186.14 | 1,381.28 |
| Duquesne Oil Corp., Eastland | 642.49 | 1,032.01 |
| Duke, W., R., Wichita Falls | 4,237.48 | 3,813.74 |
| Devonian Oil Co., Tulsa, Okla. | 25,886.12 | 34,113.37 |
| Deimar Oil Co., Bartlesville, Okla. | 76,010.01 | 112,656.13 |
| Dorian, R. P., Wichita Falls | 17,139.60 | 26,122.46 |
| Douglas Production Co., Electra | 1,773.46 | 2,777.59 |
| Dalton, Jack, Oil Co., Fort Worth | 1,855.00 | 2,904.35 |
| Douglas Brothers & Johns, Electra | 561.40 | 896.14 |
| Den-Wich Oil Co., Abilene | 1,068.56 | 1,658.51 |
| Douglas Oil Co., Tulsa, Okla. | 1,766.79 | 2,094.52 |
| Darby Petroleum Corp., Tulsa, Okla. | 17,789.50 | 26,898.88 |
| Davis, Louise Reyman, Tulsa, Okla. | 17.04 | 20.91 |
| Davis, Beatrice H., Tulsa, Okla. | 17.04 | 20.91 |
| Deering, John A., Houston | 10,528.43 | 14,777.87 |
| Dean Oil Co., Burkburnett | 936.67 | 1,334.75 |
| Dorothy Oil Co., Eastland | 225.68 | 361.08 |
| Dunman & Scott, Houston | 31,313.69 | 42,343.93 |
| Derby, Haines & Williams, Wichita, Kans. | 4,289.06 | 4,591.94 |
| Derby Oil Co., Wichita, Kans. | 4,353.05 | 5,265.45 |
| Derby Oil Co., Wichita, Kans. | 18,361.54 | 27,210.55 |
| Derby & Haines, Wichita, Kans. | 6,069.70 | 7,467.60 |
| Davis & Wallace, Minerva, (Smith lease) | 312.30 | 462.08 |
| Davis & Wallace, Minerva, (Chandler lease) | 559.25 | 833.21 |
| Dixon Creek Oil Co., Amarillo | 65,370.09 | 72,259.19 |
| Davis, Caroline A., Somerset | 321.20 | 397.44 |
| **E** | | |
| Edwards, R. J., Oklahoma City, Okla. | 1,436.47 | 1,856.68 |
| Erie Investments Limited of Texas, Toronto, Canada | 528.16 | 739.20 |
| Easter Oil Corp., Wichita Falls | 72,203.64 | 97,205.89 |
| Eubank, R. O. and B. K., Cross Plains | 1,466.14 | 2,306.30 |
| Eddleman & Payne, Inc., Wichita Falls | 8,578.84 | 12,683.52 |
| East Batson Oil Co., Batson | 15,629.83 | 20,318.78 |
| Ebberts, Falloure & Hebert, Beaumont (6-1926 to 9-30-29) | 21,994.99 | 27,147.40 |
| Eddy Oil Co., Beaumont | 823.54 | 1,070.60 |
| Edwards, R. J., Oklahoma City, Okla. | 202.23 | 302.98 |
| Ellis and DuBose, Fort Worth | 1,089.58 | 1,442.37 |
| Easton, E. S., Wichita Falls | 1,305.62 | 2,089.02 |
| Eumo Oil Corp., Abilene | 725.77 | 954.10 |
| Eggers, J. E., trustee, San Antonio | 513.43 | 613.84 |
| Ernest Oil Co., Rockdale | 303.59 | 452.34 |
| Electra Production Co., Inc., Electra | 950.69 | 1,496.71 |
| Empire Gas & Fuel Co., Bartlesville, Okla. | 513,362.50 | 701,766.54 |
| Ellis & Anderson, San Antonio | 123.74 | 152.76 |
| Engel, E. A., Albany | 11,080.78 | 17,964.30 |
| Erickson, Selma E., Wichita Falls | 67.87 | 109.03 |
| Eastland Oil Co., Fort Worth | 176,546.72 | 271,623.64 |
| **F** | | |
| Foster, Don S., Mexia | 2,000.00 | 2,500.00 |
| Four Oil Co., The, Wichita Falls | 2,177.85 | 3,334.72 |
| Fresno Oil Co., Wichita Falls | 34,449.74 | 47,806.09 |
| Fountain Prod. Co., Saratoga | 2,132.29 | 2,772.99 |
| Faith Oil Corp., Wichita Falls | 297.66 | 243.73 |
| Fultz, W. B., et al, Graham | 11,297.85 | 17,062.30 |
| Freeman, J. H., Wichita Falls, (Hennig lease) | 6,642.22 | 10,569.72 |
| Freeman, Wichita Falls, (Hampton Oil Corp. "B" lease) | 635.52 | 1,048.62 |
| Freeman, Wichita Falls, (Hampton Oil Corp. "A" lease) | 5,418.92 | 8,613.92 |
| Fox & Adams, Burkett | 14,366.69 | 18,688.90 |
| Franklin, Wirt, Ardmore, Okla. | 653.09 | 1,077.40 |
| Forster, A. R., Coleman | 62.90 | 97.50 |
| Falls Production Co., Wichita Falls | 4,820.76 | 7,713.22 |
| Fogle Oil Co., Kinzua, Pa. | 1,355.00 | 1,963.13 |
| Farish & Ireland lease, Houston | 7,617.86 | 9,903.21 |
| Freeport Sulphur Co., Freeport | 402.00 | 402.00 |
| Flynn, W. B., Beaumont | 4,884.49 | 6,012.96 |
| Fort Bend Oil Co., Houston | 12,958.58 | 16,846.15 |
| Fort Bend Oil Co., et al, Houston | 18,261.92 | 22,260.57 |
| Fain-McGaha Oil Corp., Wichita Falls | 570,984.90 | 868,269.08 |
| Fainston, Mark Special Account, Tulsa, Okla., (Old O. P. G. lease) | 15,247.31 | 22,719.24 |
| Farlyn Oil Co., Houston | 12,740.35 | 10,829.29 |
| F. H. E. Oil Co., Sherman | 47,010.33 | 62,513.49 |
| Fleming and Kimbell, Sherman | 4,285.81 | 4,116.96 |
| Fisher, J. A., Wichita Falls | 1,003.69 | 1,690.52 |
| Ferguson & Watson, Electra | 1,199.86 | 1,979.76 |
| Frontier Oil Co., San Antonio | 10,093.81 | 13,690.94 |
| **G** | | |
| Glasscock, Lonnie, Big Spring | 18,078.92 | 13,974.43 |
| Grassroots Oil Co., Fort Worth, (6-30-29) | 1,593.22 | 2,312.07 |
| Goodwin, P. B., et al, Breckenridge (6-30-29) | 1,400.66 | 1,911.45 |
| Goodwin, P. B., trustee, Breckenridge (6-30-29) | 8,184.82 | 7,049.40 |
| Gultex Production Co., Waxahachie | 2,380.90 | 3,981.81 |
| Glodis Oil Co., Saratoga | 3,487.58 | 3,778.20 |
| Ginter-Lange Oil Co., San Antonio | 1,401.72 | 1,862.32 |
| Ginter-Jones Oil Co., San Antonio | 526.28 | 684.16 |
| Goldsmith, N. D., Olney | 890.55 | 1,432.62 |
| Gaither Production Co., Rockdale | 681.53 | 1,015.48 |
| Gates-Bacon-Lea, Wichita Falls | 5,948.60 | 8,922.90 |
| Glenridge Oil Corp., St. Louis, Mo. | 3,764.58 | 5,880.38 |
| Grassroots Oil Co., Fort Worth | 1,431.64 | 2,276.82 |
| Granite Oil & Gas Co., Ridgeway, Colo. | 459.04 | 730.35 |
| Gunn Production Co., Cross Plains | 1,092.00 | 1,560.72 |
| Grisham-Hunter Corp., Abilene | 1,736.08 | 2,434.96 |
| Gholson, Jno. M., Ranger | 7,886.20 | 11,804.69 |
| Godley Oil & Gas Co., Dallas | 24,956.82 | 29,652.39 |
| Gordon Oil Co. of Texas, The, Logan, Ohio | 81.76 | 126.73 |
| Gilbert Co., The, Beaumont | 6,180.24 | 8,036.47 |
| Gandy & Peyton, Wortham | 1,452.34 | 1,744.82 |
| Gates Oil Co., Ardmore, Okla. | 3,123.61 | 5,453.82 |
| G. & K. Production Co., Fredericksburg | 1,265.63 | 1,586.19 |
| Guthrie, Cole & Ferguson, Wichita Falls | 688.06 | 1,024.50 |
| Group No. 1 Oil Corp., Big Lake | 498,554.66 | 844,610.24 |
| Gray & Adams, Inc., Gainesville | 1,503.36 | 1,743.34 |
| Golding Phillips Oil Co., Amarillo | 1,631.76 | 1,575.38 |
| Grayburg Oil Co., San Antonio | 185,995.17 | 176,396.75 |
| Gibson and Johnson (Inc.), Abilene | 14,230.05 | 25,614.09 |
| Gardner Bros. & Collins, Wichita Falls | 53,594.28 | 80,474.38 |
| Goodwin, P. B., et al, Breckenridge | 1,127.33 | 1,722.30 |
| Goodwin, P. B., trustee, Breckenridge | 7,013.84 | 6,629.42 |
| Godfrey, F. L., Enid, Okla. | 68.80 | 106.64 |
| Gopher, The Oil Co., Amarillo | 1,738.49 | 2,426.98 |
| Glass Brothers, Rosebud | 646.66 | 937.66 |
| Gates & Nutt, Wichita Falls | 1,374.33 | 2,336.36 |
| Gardner, Wilson & McCaldin, Wichita Falls | 1,017.84 | 1,679.41 |
| Glasscock, Leon D., San Antonio (Mgr. for J. M. Edmondson). | 1,364.63 | 1,696.00 |
| Guernsey Oil & Gas Co., Pampa | 1,559.72 | 1,987.80 |
| Greene Production Co., Fort Worth | 48,782.97 | 66,660.00 |
| Grayback Development Corp., Wichita Falls | 31,753.82 | 45,765.89 |
| Graham & Lash, Cisco | 780.00 | 1,108.89 |
| Gilliland, C. W., Wichita Falls | 3,054.56 | 4,375.87 |
| Gilliland-Rosser Oil Co., Wichita Falls | 24,499.78 | 40,528.16 |
| Galvez Oil Corp., Tulsa, Okla. | 4,593.08 | 6,907.48 |
| Grayce Oil Co., Wichita Falls | 20,315.15 | 32,636.60 |
| Gibson & Cardwell, Wichita Falls | 883.29 | 1,059.96 |
| Golden West Oil Co., San Antonio | 24,915.16 | 25,631.42 |
| Green & Owens, Brownwood | 1,128.00 | 1,976.50 |
| Gilman & McMurray, Cisco | 4,939.67 | 8,527.86 |
| Grady, D., formerly D. Grady, et al, Electra | 400.35 | 620.53 |
| Grady, D., Electra | 382.63 | 650.46 |
| Gulf Production Co., Houston | 8,082,210.69 | 9,094,503.18 |
| Graham & Harrison, South Bend | 4,414.74 | 7,016.86 |
| Gray, Vernon (K. C. lease) | 449.08 | 613.38 |
| Gwynn-Boyd Drilling Co., Wichita Falls | 21,571.53 | 35,802.87 |
| Gwynn, P. F., Wichita Falls | 2,118.99 | 3,602.34 |
| Gwynn, P. F., Wichita Falls (Indv. & Agt. for J. F. Boyd & Tom Corridon) | 1,258.18 | 2,138.84 |
| Guaranty Oil Co., Electra | 105.80 | 172.77 |
| Guaranty Oil Co., Electra, (6-30-29) | 137.64 | 209.71 |
| Guaranty Oil Co., Electra, (3-31-29) | 148.48 | 196.92 |
| Grisham, V. I., Wichita Falls | 3,169.81 | 4,400.18 |
| Gwinnup, H. G., Fort Worth | 555.00 | 945.11 |
| Gates Oil Co. Littleton, Colo., (Wyo.) | 4,737.52 | 5,822.33 |
| Gorsuch, L. J., Abilene | 1,491.03 | 2,052.11 |
| Gorsuch, L. J., Abilene | 1,216.24 | 1,942.42 |
| Gallagher & Lawson, Desdemona | 297.23 | 591.96 |
| Golding & Cochran, Wichita Falls | 74,826.27 | 115,979.17 |
| Golding, Dudley S., Wichita Falls | 11,722.35 | 16,411.29 |
| Gilman and Conway Bros., Ranger | 4,703.82 | 8,353.98 |
| **H** | | |
| Howard County Oil Corp., Big Spring | 123,119.29 | 98,040.54 |
| Hine, Van Oil Co., Baird | 217.84 | 282.70 |
| Hopkins, S. A., Cisco | 491.24 | 643.52 |
| Harper, The Petroleum Corp., Mineral Wells | 40,320.18 | 65,493.75 |
| Hicks, Theo., San Antonio (8-1925 to Aug. 31-1929) | 8,598.27 | 11,359.64 |
| Hueber, F. A., Putnam (6-1-27 to 9-1-29) | 10,659.00 | 14,455.41 |
| Howard County Oil Corp., Big Spring (6-30-29) | 123,119.29 | 98,040.54 |
| Hawkins, W. L., Wichita Falls | 3,445.78 | 5,678.49 |
| Handrick, August, Moran | 118.68 | 150.35 |
| Hyer, Fred, Fort Worth | 41,318.37 | 40,652.58 |
| Hunter, T. F., Wichita Falls | 14,345.13 | 23,469.54 |
| Hoppes, W. T., Burkburnett | 277.88 | 454.75 |
| Howard County Oil Corp., Big Spring | 112,092.96 | 118,765.26 |
| Hemby, J. M., Electra | 1,005.68 | 1,614.37 |
| Howard Petroleum Corp., Tulsa, Okla. | 785.83 | 1,041.77 |
| Houston Oil Co. of Texas, et al, Houston | 157,874.94 | 136,319.41 |
| Helvetia Oil Co., San Antonio | 12,567.29 | 15,472.71 |
| Hitchman & Howard, Inc., San Antonio | 2,119.67 | 2,778.63 |
| Huber, J. M. Co. of La., Inc., Breckenridge | 1,896.60 | 1,801.97 |
| Harrison Oil Co., Houston | 41,431.06 | 64,974.87 |
| Heist, M. D., Putnam | 1,310.00 | 2,095.61 |
| Hedrick-Camp Drilling Co., Wichita Falls | 2,328.06 | 2,867.15 |
| Hankamer, Earl C. & Co., Sour Lake | 291.47 | 378.91 |
| Hankamer, Earl C. & Co., Sour Lake, (6-30-29) | 372.35 | 466.09 |
| Hankamer, Earl C. & Co., Sour Lake, (3-31-29) | 517.96 | 621.55 |
| Hart Oil Corp., Fort Worth | 2,161.94 | 3,504.95 |
| Hawley, J. A., Ottawa, Ont., Canada (Gdn. estate) | 245.65 | 359.29 |
| Howard, Duffield & Berlin, Tulsa, Okla. | 1,088.37 | 1,430.67 |
| Home Oil & Gas Co., Inc., Albany | 1,650.53 | 2,357.82 |
| Hill & Dowell, Batson | 12,651.86 | 16,447.40 |
| Hamon, Jake L., Ardmore, Okla. | 11,794.97 | 18,997.56 |
| Hampton & Wilson, "Hadley," Wichita Falls | 99.68 | 140.58 |
| Hope Oil & Gas Co., Fort Worth | 10,343.28 | 15,411.51 |
| Herrogan Oil Corp., Pampa | 18,952.86 | 26,544.52 |
| Hambleton, Geo., San Antonio | 424.36 | 534.15 |
| Hill, W. R., trustee, Burkburnett | 190.50 | 318.13 |
| Hobbs Oil Co., Tulsa, Okla. | 1,606.46 | 2,501.34 |
| Hickey, T. J., et al, Corsicana | 57.60 | 86.32 |
| Harvey, R. A., Houston | 1,257.00 | 1,448.81 |
| Homaokla Oil Co., Oklahoma City, Okla. | 3,663.39 | 5,618.06 |
| Hanlon Gasoline Co., Tulsa, Okla. | 1,502.10 | 2,119.60 |
| Hughes, J. K., Oil Co., Mexia | 21,437.70 | 32,762.68 |
| Hutcheson, Frank, Archer City | 567.00 | 716.11 |
| Houston Gulf Gas Co., Houston | 51,353.98 | 40,571.85 |
| Hamilton, Walter R., trustee, San Antonio | 5,227.00 | 7,621.14 |
| Herbert Oil Co. of Texas, Fort Worth | 5,311.46 | 8,422.43 |
| Holcombe, Thos., Wichita Falls | 495.96 | 797.84 |
| Horn, T. W., Houston | 3,091.68 | 4,019.19 |
| Hobson & Voorhees, San Antonio | 648.21 | 853.51 |
| Humble Oil & Refining Co., Houston | 7,775,323.48 | 9,424,182.29 |
| Hamilton & Martin, Wichita Falls | 1,760.96 | 2,729.49 |
| Hickok Producing & Development Co., Toledo, Ohio | 538.08 | 793.16 |
| Hardy Oil Co., Wichita Falls | 2,407.90 | 3,974.37 |
| Hammon, W. H., Wichita Falls | 36,322.90 | 60,492.55 |
| Hammon & Heyser, Wichita Falls | 17,594.38 | 26,995.06 |
| Harwell, E. P., Tulsa, Okla. | 6,981.61 | 11,699.74 |
| Holbrook & Woods, Wichita Falls | 24,094.88 | 38,231.28 |
| Hardie, J. M., & Co., Sour Lake | 509.43 | 662.26 |
| Hi-land Oil Co., Wichita Falls, (a trust estate) | 25,886.47 | 43,953.52 |
| Haskell, Frank, Tulsa, Okla., (6-30-29) | 2,027.40 | 2,582.52 |
| Haskell, Frank, Tulsa, Okla., (9-30-29) | 1,771.87 | 2,450.40 |
| Hedges, F. M., Wichita Falls | 380.35 | 627.57 |
| Hinson, G. D., & R. V. Tidwell, Graham | 5,921.93 | 8,980.93 |
| Halmack Oil Co., Dallas | 208.28 | 335.03 |
| Houston Production Co., Houston | 11,013.38 | 13,680.06 |
| H-Y Oil Co., Inc., Fort Worth | 10,087.35 | 15,694.28 |
| Houghland Production Co., Dallas | 4,619.43 | 6,258.62 |
| Hamilton, W. L., Bridgetown | 1,002.24 | 1,793.38 |
| Humphreys Brothers, Inc., Houston | 2,425.54 | 3,808.31 |
| Humphreys Corp., Houston | 229,555.38 | 280,346.00 |
| Hefley, McIntosh & Thomas, Cameron | 573.91 | 832.19 |
| Hammond, J. G., Tulsa, Okla. | 177.36 | 292.71 |
| Holmes Brothers, Amarillo | 2,280.00 | 2,981.30 |
| Holmes, Huey & Holmes, Amarillo | 13,969.06 | 22,623.86 |
| Holmes, Hill, Seibold & Holmes, Amarillo | 17,832.60 | 29,282.75 |
| Holmes & Huey, Whittenburg | 1,672.44 | 2,009.14 |
| Heidrich, E. C., Jr., Amarillo | 6,134.44 | 7,390.20 |
| H. B. J. Oil & Gas Trust, Baltimore, Md. | 3,084.47 | 3,598.36 |
| Houseman, D. H., & Co., Dallas | 75.79 | 107.34 |
| Hughes, Wm. K., trustee, St. Louis, Mo. | 1,070.60 | 1,549.69 |
| Howell, M. L., Lohn | 701.00 | 1,051.00 |
| Hoffman & Page Co., The, Eastland | 24,211.70 | 38,077.04 |
| Harris & Simons, Tulsa, Okla. | 7,608.34 | 6,467.08 |
| Hines, Harry, Wichita Falls | 8,725.83 | 14,746.44 |
| Hynds Oil Co., Cheyenne, Wyo. | 335.64 | 508.73 |
| Hi-land Oil Co., Wichita Falls, (a trust estate) | 25,886.47 | 43,953.52 |
| Hughes, J. K., Developing Co., Mexia | 1,143.32 | 1,371.97 |
| Harper Petroleum Corp., Mineral Wells | 66,405.05 | 116,573.85 |
| Hyde Production Co., Houston | 3,216.29 | 4,345.11 |
| Hyde, George, Houston | 3,626.92 | 4,204.06 |
| Hanover Co., Inc., Wichita Falls | 4,249.32 | 6,132.85 |
| **I** | | |
| Irick Oil Co., Waskom | 296.68 | 405.83 |
| Infield Petroleum Co., Austin | 769.31 | 1,168.06 |
| Idaho Oil Co., San Antonio | 1,201.72 | 1,548.18 |
| Independent Oil & Gas Co., Wichita Falls | 11,730.27 | 18,256.87 |
| Ilseng Production Co., Fort Worth | 816.42 | 1,166.76 |
| Independent Oil & Gas Co., Tulsa, Okla. | 317,045.49 | 289,124.94 |
| **J** | | |
| Jones, Edwin M., El Dorado, Ark. | 11,714.16 | 17,473.35 |
| Japhet Production Co., Houston | 6,727.57 | 7,656.81 |
| Jackson, T. H., Sipe Springs | 86.41 | 116.66 |
| Justin Oil Corp., et al, Wichita Falls | 10,732.26 | 18,184.10 |
| Judson Oil Co., Tulsa, Okla. | 7,073.16 | 11,781.98 |

# There's a field-proved reason for every feature OF THE Elliott CORE DRILL



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Superior efficiency, economy and dependability are built-in features of Elliott Core Drills which are invariably reflected directly in the cores taken with these tools.

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AN ASSOCIATE COMPANY OF AMERICAN CHAIN COMPANY Inc.
in business for Your Safety
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98 A

| Name and address— | Barrels | Value |
|---|---|---|
| Jones, J. A., Moran | 303.08 | 506.86 |
| James, Tom, Albany | 5,607.14 | 8,971.41 |
| Junior Oil Co., Houston | 293.96 | 512.35 |
| Julia Oil Co., Sour Lake | 3,224.69 | 4,192.09 |
| Jacob Oil & Gas Co., Graham | 169.20 | 262.26 |
| Jackson, J. S., trustee, Sour Lake | 5,412.92 | 7,036.79 |
| Jackson, Co., The, San Antonio | 1,064.52 | 1,303.98 |
| Johnson Bros., San Antonio | 6,690.35 | 9,036.00 |
| Jones, J. E., Wichita Falls | 1,542.66 | 2,511.44 |
| Janellen Oil Co., Tulsa, Okla., (Inc., S. R. Walker) | 192.00 | 230.46 |
| Jones, Hugh, Burkburnett | 2,516.92 | 3,792.63 |
| Jonray Oil Co., San Antonio | 1,060.23 | 1,224.07 |
| Jones, W. A., Minerva | 756.80 | 982.20 |
| **K** | | |
| Kurz, A. A., San Antonio | 366.07 | 439.26 |
| Keck Investment Co., Austin | 6,495.18 | 6,365.28 |
| Kleinfelder, B. F., Breckenridge | 418.48 | 637.31 |
| Kimbell & Bostic, Burkburnett | 5,495.69 | 8,518.32 |
| Kahle, Gracey & Diver, Bridgeport, Ill. | 3,509.23 | 2,982.85 |
| Keller, J. E., Iowa Park | 319.24 | 515.02 |
| King, Anna B., Muskogee, Okla. | 308.72 | 250.82 |
| Kerr, T. P., Corsicana | 593.02 | 893.34 |
| Kurz Oil Co., Somerset | 487.67 | 536.99 |
| Kay, A. W., receiver, Graham | 1,139.85 | 1,775.04 |
| Kershaw, L. R., Muskogee, Okla. | 926.05 | 752.39 |
| Kleiner, Charles J., Cisco | 13,918.29 | 21,495.86 |
| Kokomo Petroleum Co., Gorman | 669.00 | 1,052.83 |
| Kent, G. C., Corsicana | 20,664.57 | 28,504.05 |
| Kirby Petroleum Co., Houston | 29,492.76 | 27,444.64 |
| Keystone Production Co. of Texas, Fort Worth | 3,153.37 | 5,112.01 |
| Kimmell & Woofter, Wichita Falls | 1,814.86 | 3,169.72 |
| Kaufman, L., San Antonio | 526.14 | 605.06 |
| Kavanaugh Petroleum Co., Houston | 3,636.89 | 5,455.36 |
| Knotts, F. F., Wichita Falls | 587.62 | 955.11 |
| Keener Oil & Gas Co. of Texas, Tulsa, Okla. | 4,943.64 | 7,368.02 |
| King & Daniel, Wichita Falls | 5,887.25 | 9,934.32 |
| Kolp, C. F., Electra | 27,595.00 | 42,069.80 |
| Kewanee, The Oil & Gas Co., Titusville, Pa. | 434,647.60 | 705,079.31 |
| Klemcke, George, trustee, Von Ormy | 1,699.33 | 1,973.93 |
| Koenig, Max W., Oakland, Calif. | 19,361.22 | 17,425.10 |
| Kuhlemeier-Kleiner Oil Co., Cisco | 561.52 | 884.45 |
| Killam, O. W., Laredo | 59,131.09 | 53,217.98 |
| King Royalty Co., Wichita Falls | 123,789.99 | 192,898.39 |
| Kistler, Frank E. & Co., Inc., Littleton, Colo. | 9,118.26 | 9,486.33 |
| King, R. A., trustee, Wichita Falls | 3,640.82 | 2,376.74 |
| Kemrow Co., Wooster, Ohio | 12,652.94 | 20,714.06 |
| Kelly, Geo. L., Wichita Falls | 522.84 | 810.39 |
| Kohlman, Richard, Iowa Park | 540.00 | 864.00 |
| Kendrick, P. S., Albany | 1,154.13 | 1,631.53 |
| Kate, The Bell Oil Co., Dallas | 920.82 | 1,468.90 |
| Kishi, K., Terry | 305.19 | 396.75 |
| Kemp, Oscar, Burkburnett, (6-30-29) | 2,385.36 | 3,169.89 |
| Kemp, Oscar, Burkburnett | 2,556.57 | 3,800.73 |
| Kirk & Evans, Gorman (W. L. Hornsley, trustee) | 2,555.22 | 3,912.12 |
| Kirk & Son, Gorman | 4,306.83 | 5,254.66 |
| **L** | | |
| Lynch, John D., trustee, Sioux Falls, S. D., (6-30-29) | 2,318.47 | 3,604.10 |
| Lewis, J. E., et al, Eastland | 983.98 | 1,525.14 |
| Lynch, John D., trustee, Sioux Falls, S. D. | 1,212.99 | 2,133.14 |
| Larkin, W. B., Wichita Falls | 342.72 | 543.06 |
| Lefors Petroleum Co., Lefors | 65,342.11 | 86,052.37 |
| Lytle, C. F., Mexia | 9,006.86 | 13,002.37 |
| Lomax, Thornton, Jr., Wichita Falls | 2,455.79 | 4,052.04 |
| Long, C. B., Wichita Falls | 219.32 | 325.81 |
| Lee, Homer, Wichita Falls | 1,707.88 | 2,851.72 |
| Little Caddo Syndicate, Fort Worth | 2,965.49 | 4,818.80 |
| Lowe, Delaney & Carter, De Leon | 244.25 | 329.73 |
| Lockhart & Co., Los Angeles, Calif. | 79,657.72 | 102,571.39 |
| Little, Wm., Breckenridge | 262.76 | 367.85 |
| Lee & Scott, Inc., Houston | 2,059.62 | 2,736.00 |
| Leiser-Rochmill Production Co., Inc., Fort Worth | 1,749.68 | 2,806.90 |
| Lake Graham Oil Co., Houston | 3,563.99 | 4,741.56 |
| Leonard Oil Co., Somerset | 189.20 | 227.04 |
| Lewis Production Co., Pittsburgh, Pa. | 72,457.33 | 107,816.51 |
| Leonard, Geo., Somerset | 942.68 | 1,133.61 |
| Lewis, J. E. & Co., Eastland | 817.74 | 1,295.61 |
| Lowenstein Oil Co., Rockdale | 1,057.17 | 1,575.21 |
| Loggie & Arendt Oil Co., Albany | 1,906.00 | 2,592.16 |
| Lucey Petroleum Co., Dallas | 378.36 | 553.34 |
| Lowry Oil Corp., Wichita Falls | 4,676.92 | 7,483.37 |
| Lotwin & Lippitt, Breckenridge | 10,155.37 | 15,381.76 |
| Levy & Evans, trustee, Fort Worth | 160.81 | 266.92 |
| Levy, Leonard M., trustee No. 2, Fort Worth | 1,451.37 | 2,494.90 |
| Levy, Leonard M., trustee No. 1, Fort Worth | 2,810.92 | 4,964.08 |
| Last, Chance Gas Co., The, Pampa | 2,640.07 | 3,219.18 |
| Lone Star Gas Co., Dallas | 13,016.09 | 21,759.20 |
| Lesh & McCall, Nocona | 20,547.95 | 14,479.52 |
| Lesh, Kilcrease & Co., Nocona | 2,375.77 | 2,256.98 |
| Landreth Production Corp., Fort Worth | 6,480.84 | 8,538.84 |
| Linedo Oil Co., Lincoln, Neb. | 2,230.15 | 2,007.13 |
| Lackey, W. G., Co., Tulsa, Okla. | 3,447.38 | 5,429.79 |
| Lea and Daniel, Wichita Falls | 2,075.18 | 3,138.75 |
| Lawson, Eugene B., Tulsa, Okla. | 60,678.61 | 90,889.50 |
| Lesh, John I. & Co., Wichita Falls | 7,643.04 | 6,558.51 |
| Long, Roy Oil Co., Navasota | 2,073.73 | 3,172.74 |
| LaSalle Petroleum Co., Tulsa, Okla. | 3,542.64 | 5,337.26 |
| Lebow, C. H., Tulsa, Okla. | 1,171.12 | 1,988.55 |
| Lake View Oil Co., Sour Lake | 12,856.22 | 16,713.08 |
| Lion Oil Refining Co., El Dorado, Ark. | 1,272,162.99 | 1,123,262.50 |
| Louisiana Oil Refining Corp., Shreveport, La. | 60,046.99 | 67,651.31 |
| Lain Oil Co., Somerset | 1,261.25 | 1,414.84 |
| Lain Oil Co., Somerset | 1,182.50 | 1,434.68 |
| Len-Cook Oil Co., Electra | 384.36 | 608.99 |
| Ledger Oil & Gas Co., Brownwood | 1,111.40 | 1,745.35 |
| **Mc** | | |
| McChesney, Nancy, Olney | 4,763.27 | 6,850.46 |
| McDonald, A. C. & M. C., Putnam | 8,740.84 | 13,819.32 |
| McNallen & Griffin, Tulsa, Okla. | 5,302.15 | 7,983.45 |
| McIlroy Oil Co., Amarillo | 42,335.28 | 46,422.51 |
| McCarty Oil Co., Wichita Falls | 85,829.96 | 146,446.62 |
| McLean, Marrs, Beaumont | 12,647.20 | 13,911.92 |
| McCormick & Noack, Rockdale | 71.17 | 103.20 |
| McGinley-Sigler Co., Fort Worth | 553.00 | 526.76 |
| McNallen, A. J., et al, Breckenridge | 2,126.87 | 3,074.34 |
| McNamara Oil Co., Beaumont | 2,314.42 | 3,008.75 |
| MacDermott, W. F., Fort Worth | 724.19 | 1,122.49 |
| McLester Oil Co., Eastland | 13,322.14 | 22,591.22 |
| McCutchen, C. E., trustee, Wichita Falls | 7,772.70 | 12,436.34 |
| McCall, C., trustee, Nocona | 996.41 | 1,231.61 |
| McBride, W. C., Inc., St. Louis, Mo. | 5,851.70 | 8,364.96 |
| McMan Oil & Gas Co., Tulsa Okla. | 1,118,570.71 | 1,290,240.53 |
| McGraw Oil Co., Tulsa, Okla. | 1,492.24 | 2,081.90 |
| McDonald & Campbell, Dallas | 3,421.30 | 5,345.07 |
| McMurray, J. L., et al, Cisco | 1,962.22 | 3,306.72 |
| McDaniel Oil Corp., Cisco | 5,335.48 | 9,054.44 |
| McCrary, E. W., Tulsa, Okla. | 4,171.56 | 5,973.29 |
| McLester, Jerome, Eastland | 2,402.77 | 4,114.41 |
| McFall, J. M., Wichita Falls | 817.56 | 1,332.40 |
| McJunkin, Florence T., et al, Tulsa, Okla. | 486.80 | 870.58 |
| Macknold Co., San Antonio | 209.31 | 242.02 |
| McHugh, G. E., Graham | 460.82 | 731.03 |
| **M** | | |
| Massie, J. H., Wichita Falls | 19,055.87 | 31,077.08 |
| Martin Petroleum Co., Humble, (4-1-28 to 6-30-29) | 12,944.47 | 15,639.68 |
| Martin, Drake & Jones, Houston, (3-31-29) | 9,836.73 | 11,804.07 |

for

Cracking Units Refineries
Gas Engines Compressors
Pumps Vapor Lines
Crane Flanges, etc.

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ARMCO MONEL

McCord Radiator & Mfg. Co.
DETROIT

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*for Rusco Industrial Brake Lining*

WHATEVER your requirements—whether for material 3" x ¼" or 20" x 1"—you can buy Rusco Industrial Brake Lining in the correct size for any installation on oil well rigs, hoists, cranes or other industrial equipment.

Equally important, you will find in Rusco a product that stands up under the hardest kind of service.

Rusco is manufactured from selected long fibre, Canadian Chrysotile asbestos, solidly woven on powerful looms of our own special design and construction. These giant looms literally pound the tough, heat-resisting asbestos threads into one sturdy, solid mass of material, making a product of exceptional strength and durability.

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If you do not know the name of the nearest Rusco supply dealer, write us for complete information. The Russell Mfg. Co., Dept. V-19, Middletown, Conn. In Canada, The Russell Mfg. Co., Ltd., St. Johns, P. Q. Also manufacturers of Rusco Belting.

## 5 REASONS

*Why Rusco is Big Enough for Any Job*

1. Gives longer service
2. Withstands frictional heat
3. No offensive fumes
4. Does not score brake drums
5. Waterproof and oil proof

**RUSCO**
INDUSTRIAL
**BRAKE LINING**


| Name and address— | Barrels | Value |
|---|---|---|
| Martin, Drake & Jones, Houston, (12-31-28) | 7,939.42 | 9,527.30 |
| Martin, Drake & Jones, Houston, (6-30-29) | 12,943.82 | 15,688.72 |
| Mid-Kansas Oil & Gas Co., Findlay, Ohio | 2,816,515.22 | 2,624,742.04 |
| Mid-Continent Holding Corp., Wichita Falls | 19,208.95 | 33,551.47 |
| Mid-Tex Oil & Gas Co., Abilene | 23.09 | 33.48 |
| Maycamp Drilling Co., Fort Worth | 2,000.25 | 2,873.14 |
| Meredith & Gant, Wichita Falls | 2,351.07 | 3,168.10 |
| Midland Oil Co., et al, Fort Worth | 402.27 | 586.78 |
| Mount Lee, Inc., Wichita Falls | 1,929.27 | 2,996.24 |
| Mills & Garitty, Corsicana | 1,754.88 | 2,188.60 |
| Minerva Petroleum Co., Minerva | 944.20 | 1,444.64 |
| Mudge Oil Co. of Texas, Pittsburgh, Pa. | 271.27 | 244.14 |
| Murphy, J. A., & J. F. Williams, Mineral Wells | 993.00 | 1,334.72 |
| Montgomery, Rea, Montgomery, Sedwick | 1,593.86 | 2,470.47 |
| Milham Corp. of Texas, San Antonio | 7,734.25 | 12,408.14 |
| Minor Oil Co., Beaumont | 9,121.74 | 11,858.26 |
| Medio Oil Co., San Antonio | 1,043.06 | 1,331.14 |
| Mordyan Petroleum Co., Pampa | 18,148.15 | 27,266.78 |
| May, F. N., Santa Anna | 309.56 | 433.80 |
| Midwest & Gulf Co. of Texas, Tulsa, Okla. | 1,496.08 | 1,815.42 |
| Mecom Oil Co., Liberty | 4,059.54 | 5,277.40 |
| Medden, E. B., Olney | 28,548.47 | 48,948.56 |
| Millikin, L. L., Burkburnett | 329.34 | 490.38 |
| Menke, John G. Wichita Falls | 2,006.24 | 3,263.98 |
| Margaret Oil Co., Cross Plains | 314.05 | 467.92 |
| Midwest Exploration Co., Denver, Colo. | 419,084.39 | 658,480.58 |
| Mid-Continent Petroleum Corp., Tulsa, Okla. | 12,549.97 | 19,137.42 |
| Mendenhall Oil Co., Cisco | 1,547.80 | 2,684.83 |
| Merrick & Belcher, Wichita Falls | 9,363.60 | 17,310.10 |
| Moore, N. A., Eastland | 483.08 | 788.55 |
| Melat Oil Co., Fort Worth | 17,034.53 | 24,727.85 |
| Morton, A. D., Tulsa, Okla. | 750.14 | 1,095.73 |
| Merrick & Bristow, Ardmore, Okla. | 177,743.48 | 141,614.78 |
| Merrick & Lamb, Ardmore, Okla. | 22,820.83 | 22,686.56 |
| Mitcham, G. P., Cisco | 1,236.62 | 1,845.19 |
| Morgan, Ray, et al, Fort Worth | 1,051.80 | 1,735.48 |
| Mayberry, C. R., Co., Laredo | 3,262.20 | 2,935.98 |
| Moore, F. L., trustee, Tulsa, Okla. | 2,201.56 | 3,412.42 |
| Matador Oil Co., Amarillo | 1,066.44 | 1,359.35 |
| Mason, J. F., Putnam | 2,795.28 | 4,453.78 |
| Medina Oil and Gas Association, San Antonio | 156.41 | 194.42 |
| Magee, R. B., Wichita Falls | 1,958.70 | 3,285.62 |
| Mook-Texas Oil Co., Fort Worth | 8,468.12 | 12,886.53 |
| Moss & Urschel & Keys, Dallas | 9,315.50 | 13,507.46 |
| Moss & Urschel, Dallas | 17,513.25 | 25,689.31 |
| Moutray Oil Co., Abilene | 110,738.68 | 175,213.71 |
| Meridian Petroleum Corp. of Texas, Tulsa, Okla. | 2,917.13 | 4,328.63 |
| Marnet Oil & Gas Co., Tulsa, Okla. | 5,014.27 | 7,583.99 |
| Mues & MacDermott, Fort Worth | 341.37 | 512.05 |
| Mills Bennett Production Co., Houston | 278,723.93 | 342,856.52 |
| Mancill, R. W., Cisco | 239.16 | 296.95 |
| Maxwell, J. C., Fort Worth | 74,364.97 | 74,773.65 |
| M. & V. Oil Co., Wichita Falls | 2,952.35 | 4,729.61 |
| Magnolia Petroleum Co., Dallas | 2,490,996.99 | 2,804,090.04 |
| Madison Oil & Gas Co., Electra | 4,326.21 | 7,350.79 |
| Marquette Oil Co., Tulsa, Okla. | 5,576.98 | 7,152.96 |
| Mann, Floyd, Payne lease, Graham | 1,265.80 | 1,961.99 |
| Mann, F. A., Grimshaw lease, Graham | 107.58 | 172.12 |
| Margaret Oil Co., Albany | 523.18 | 837.08 |
| Martin & Hamilton, Wichita Falls | 17,828.08 | 25,832.88 |
| Murchison Oil Co., Dallas | 133,721.74 | 119,216.16 |
| Mennis, G. W., Wichita Falls | 4,277.49 | 6,662.75 |
| Minntex Oil Corp., Wichita Falls | 812.42 | 1,107.95 |
| Moore, C. O., Oil Corp., St. Louis, Mo. | 13,495.57 | 20,296.45 |
| Marshall, George S., Laredo | 7,379.00 | 6,641.13 |
| Moody Corp., Tulsa, Okla. | 809,943.52 | 875,293.53 |
| Marts, E. R., et al, Dallas | 4,011.15 | 5,795.78 |
| Minnehoma Oil & Gas Co., Tulsa, Okla. | 2,963.94 | 3,048.78 |
| **N** | | |
| National Oil Co., San Antonio | 738.36 | 841.89 |
| Newton & Lillie, Shreveport, La. | 19,333.10 | 25,133.04 |
| Newport & Ohio Petroleum Co., Newport, N. Y. | 549.45 | 851.64 |
| Newton-Palmer Oil Co., Rockdale | 367.25 | 547.10 |
| Nimrod Oil Co., Dallas | 184.32 | 308.70 |
| Number Nine Oil Corp., Tulsa, Okla. | 2,587.20 | 4,119.74 |
| Navarro Oil Co., Houston | 269,409.49 | 340,668.70 |
| Noack Oil Co., Rockdale | 1,594.81 | 2,376.27 |
| Noack & Lanning-Shelton, Rockdale | 305.07 | 454.55 |
| Noack & Lanning-Phillips & Perry, Rockdale | 71.28 | 99.78 |
| Necessity Oil Corp., Eastland | 995.56 | 1,459.70 |
| Nash, Windfohr & Perry, Austin | 76,687.37 | 95,859.21 |
| Nash & Windfohr, Graham | 11,637.00 | 19,260.17 |
| Nabob Oil & Gas Co., Amarillo | 37,311.80 | 52,530.62 |
| North Fork Oil Co., Amarillo | 6,239.91 | 9,318.34 |
| Nunn-Stubblefield Oil Co., Amarillo (6-30-29) | 43,857.00 | 59,080.57 |
| Nunn-Stubblefield Oil Co., Amarillo | 22,933.00 | 37,257.53 |
| **O** | | |
| Owenwood Pool No. 3, Fort Worth | 4,303.51 | 6,342.64 |
| Omilak Oil Co., Spokane, Wash (6-30-29) | 225.79 | 264.17 |
| Oil Investment Co., Wichita Falls | 2,682.20 | 4,129.40 |
| Operators Oil Co., Tulsa, Okla. | 331,861.07 | 484,915.30 |
| Olney Oil & Refining Co., Olney | 376.06 | 493.58 |
| Owens, Sherwood B., Inc., Brownwood | 4,391.43 | 6,963.17 |
| Ohio Somerset Oil Co., Cleveland, Ohio | 1,429.52 | 1,643.95 |
| Old Colony Oil Co., Dayton | 1,676.93 | 2,180.00 |
| Overbey, J. D., Iowa Park | 419.42 | 705.52 |
| Old Ocean Oil Co., San Antonio | 3,321.80 | 2,424.91 |
| Optimist Oil Co., Electra | 2,891.62 | 4,589.69 |
| Osage Development Co., Bartlesville, Okla. | 1,168.68 | 1,052.14 |
| Owen-Sloan Oil Co., Forsan | 292,671.14 | 236,856.33 |
| Oldom, William P., Iowa Park | 2,213.00 | 2,860.86 |
| Oil Fields Corp. of Arkansas, El Dorado, Ark. | 153.00 | 206.55 |
| Olean Petroleum Co., Bristow, Okla. | 19,645.56 | 18,788.42 |
| Operating Companies, Tulsa, Okla. | 1,931.77 | 1,969.55 |
| Oriental Oil Co., Dallas | 448.93 | 647.20 |
| Oil Royalty Corp., Brownwood | 490.90 | 587.70 |
| O'Neil, John, Wichita Falls | 12,654.70 | 22,166.66 |
| Oktaha Co., Tulsa, Okla. | 374.53 | 541.28 |
| Omilak Oil Co., Spokane, Wash. | 227.56 | 284.45 |
| Orange Petroleum Corp., Orangefield | 26,953.41 | 34,574.88 |
| Onyx Oil Co., Houston | 12,526.32 | 11,273.69 |
| **P** | | |
| Pecos Pipe Line Co., San Angelo | 9,163.38 | 9,140.71 |
| Piper, L. E., trustee, Vernon | 1,620.13 | 2,583.66 |
| Palmer & Burch, Inc., Wichita Falls | 13,243.22 | 21,436.91 |
| Plains Drilling Co., Amarillo (12-31-28) | 21,378.00 | 26,972.88 |
| Plains Drilling Co., Amarillo (3-31-29) | 32,954.00 | 37,614.28 |
| Plains Drilling Co., Amarillo (6-30-29) | 24,869.00 | 29,030.99 |
| Price-Russell & Co., Ranger | 4,562.56 | 8,193.17 |
| Pollard, W. E., and C. E., Pampa | 6,088.28 | 9,102.71 |
| Peerys, Thomas H., Wichita Falls | 706.86 | 1,166.32 |
| Primrose Oil Co., Sourlake | 1,987.33 | 2,583.53 |
| Parnell, J. L., Wichita Falls | 439.36 | 697.43 |
| Pols, M., et al, Wichita Falls | 4,216.37 | 6,855.76 |
| Pols, M., trustee, Wichita Falls | 263.17 | 421.08 |
| Pols-Fine-Schulz, Wichita Falls | 917.64 | 1,514.10 |
| Powell, H. J., trustee, San Antonio | 14,084.63 | 17,605.80 |
| Pickens & Lewis, Dallas | 441.48 | 684.30 |
| Piney Oil & Gas Co., New York, N. Y. | 3,939.24 | 3,873.33 |
| Pivoto, M. E., Sour Lake | 3,097.89 | 3,727.25 |
| Powers Production Co., Houston | 1,890.13 | 1,976.05 |
| Py-Tex Oil Co., Winchester, Ky. | 1,545.36 | 2,588.12 |
| Paull Oil Co., Graham | 12,008.97 | 19,868.24 |
| Pure Oil Co., Chicago, Ill. | 572,270.74 | 766,068.45 |
| Poor Boy Oil Co., Rockdale | 397.75 | 576.74 |
| Producers Supply & Tool Co., Henrietta, Ohio | 3,848.18 | 6,205.46 |

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*You'll prefer the TICO 2-cycle engine for its:*

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Flood lubrication—within the dust—and dirt-tight full enclosed crankcase.

Easy jacket cleaning—by removing only the cylinder head cover (TICO 2-piece cylinder head)

Reserve power—through TICO refinement of design

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The TICO Gas Engine has all the power you want and is made so that you can get the full rated capacity throughout the life of the engine.

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TIW No. 26

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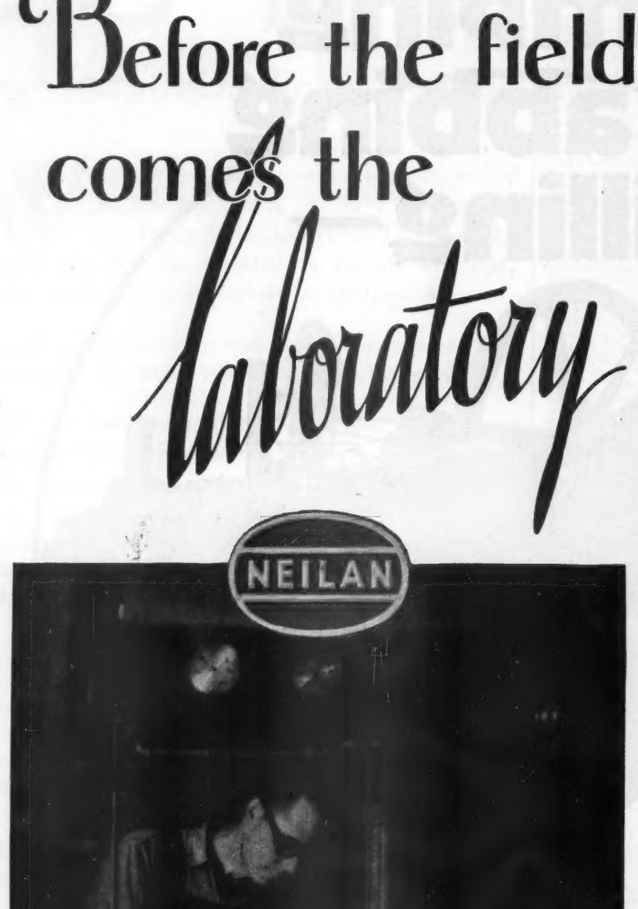


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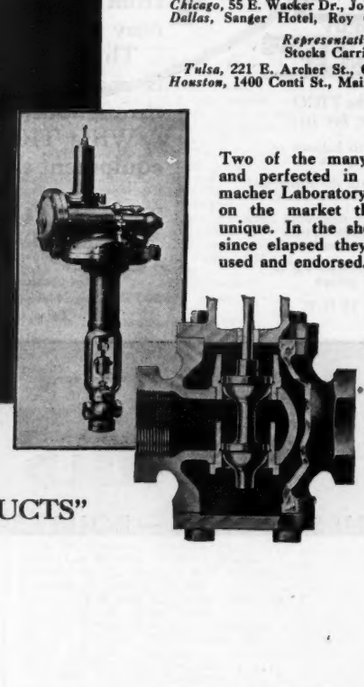

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OF NEILAN PRODUCTS"

| Name and address— | Barrels | Value |
|---|---|---|
| Pearson, W. L., Properties, Inc., Corpus Christi | 14,824.55 | 12,923.43 |
| Pioneer Oil, Gas & Refining Co., Danville, Ill. | 1,108.65 | 1,261.08 |
| Pandem Oil Corp., Wichita Falls | 16,093.21 | 24,969.56 |
| Philp Brothers, Beaumont | 5,073.54 | 6,595.60 |
| Plymouth Oil Co., Pittsburgh, Pa. | 195,856.35 | 205,023.29 |
| Permian Oil Co., Eastland | 14,238.56 | 25,676.94 |
| Powell, T. O., Cross Plains | 229.66 | 335.30 |
| Pennok Oil Corp., Dallas | 14,130.91 | 20,402.80 |
| Palmer, Freddie, Oil Co., Rockdale | 155.00 | 200.50 |
| Pemeta Oil Co., Fort Worth | 4,016.53 | 6,149.61 |
| Paraffine Oil Co., Houston | 11,511.97 | 14,965.57 |
| Portland Drilling Corp., Wichita Falls | 835.90 | 1,316.95 |
| Prairie Oil & Gas Co., Independence, Kans. | 1,450,247.14 | 1,625,940.81 |
| Prairie Oil & Gas Co., Independence, Kans. | 40,268.11 | 59,218.63 |
| Poole, B. O., Batson | 2,686.13 | 3,491.98 |
| Petroleum Producers Co., Wichita Falls | 142,535.45 | 227,797.60 |
| Producers Drilling Co., Wichita Falls | 6,147.24 | 9,904.34 |
| Putnam Oil Co., Tulsa, Okla. | 43,942.56 | 67,618.06 |
| Producers & Refiners Corp. of Texas, Independence, Kans. | 5,441.72 | 8,379.36 |
| Pitzer & West, Breckenridge | 13,629.66 | 22,081.79 |
| Paggi Brothers Oil Co., Beaumont | 9,564.83 | 12,434.27 |
| Paggi, Charles, & Co., Beaumont | 520.87 | 677.15 |
| Primrose Refining Co., Wichita Falls | 3,382.19 | 5,556.16 |
| Pennell, C. A., Loving | 2,162.23 | 3,320.57 |
| Panhandle Refining Co., Wichita Falls | 150,830.58 | 248,085.64 |
| Penn Oil Co., Dallas | 418.51 | 477.10 |
| Parry Oil Co. of Texas, Inc., Fort Worth | 405.43 | 610.94 |
| Patterson, W. A., Fort Worth | 2,553.36 | 3,853.02 |
| Pelkinton, F. L., Burkburnett | 1,440.91 | 2,161.56 |
| Petroleum Investment Co., Wichita Falls | 3,338.62 | 5,454.40 |
| Phillips Petroleum Co., Bartlesville, Okla. | 3,037,112.92 | 4,227,399.42 |
| Phillips, J. R. (Currie), Amarillo | 1,073.68 | 1,465.97 |
| Phillips, J. R. (Invader Drilling Co.), Amarillo | 7,079.27 | 7,422.95 |
| Phillips, J. R. (Jewel), Amarillo | 4,072.05 | 5,725.69 |
| Perkins & Cullum, Wichita Falls | 35,405.79 | 57,428.48 |
| Perkins, J. J., Wichita Falls | 2,583.49 | 3,746.47 |
| Preston Oil & Gas Co., Brownwood | 139.86 | 195.80 |
| Petroleum Producers Co., Wichita Falls | 1,457.93 | 2,405.61 |
| Pace & Ward, Breckenridge | 1,950.47 | 2,983.54 |
| Pickrell, Frank T. (Cranfill Brothers Oil Co.), Wichita Falls | 6,842.79 | 5,474.32 |
| Pace, George L., Wichita Falls | 724.31 | 1,157.10 |
| Palo Duro Oil Co., Amarillo | 5,293.88 | 6,024.50 |
| Phillips, W. G., and J. B. Milam, Chelsea, Okla. | 45.54 | 70.58 |
| P-M Drilling Co., Chelsea, Okla. | 197.13 | 301.80 |
| Plains Drilling Co., Amarillo (7-1 to 9-30-29) | ..... | 702.69 |
| Patterson, W. A., Fort Worth | 2,836.81 | 4,345.13 |
| Pharis Oil Co., Amarillo | 1,262.27 | 1,430.49 |
| Progressive Production Co., Kansas City, Mo. | 1,456.72 | 2,404.28 |
| Pennowa Oil & Gas Co., Tulsa, Okla. | 12,485.02 | 17,448.47 |
| **Q** | | |
| Quinn, J. W., et al, Eastland | 5,280.08 | 9,354.36 |
| Quincy Oil Co., Vernon | 151.41 | 243.77 |
| Quartet Oil Co., Tulsa, Okla. | 6,803.93 | 11,830.24 |
| **R** | | |
| Rubsom & Hunter, Wichita Falls | 7,679.74 | 12,984.96 |
| Robinson, Arthur D., Dallas | 7,658.98 | 9,897.52 |
| Robertson Drilling Co., Fort Worth | 2,292.98 | 3,141.27 |
| Roth & Faurot, Independence, Kans. | 5,385.70 | 9,155.26 |
| Rex Petroleum Corp., Vinton, La. | 16,234.82 | 21,105.27 |
| Riner & Bailey, Wichita Falls | 71,348.76 | 119,675.49 |
| Riner & Omohundro, Wichita Falls | 13,373.06 | 21,918.65 |
| Richardson & Kelsey, Fort Worth | 10,587.80 | 3,141.92 |
| Rountree & White, Rockdale | 790.85 | 1,176.36 |
| Rowe, J. G., Wichita Falls | 5,177.17 | 8,478.97 |
| Rockdale Junior Oil Co., Rockdale | 212.58 | 308.23 |
| Ross, C. E., Burkburnett | 544.46 | 844.16 |
| Reclamation Co., Fort Worth | 5,531.50 | 8,247.87 |
| Reno Oil Co., Sistersville, W. Va., | 55,092.91 | 90,672.60 |
| Reiter-Foster Oil Co., Tulsa, Okla. | 24,326.98 | 32,887.96 |
| Rex Tex Oil Co., Winchester, Ky. | 1,545.36 | 2,588.12 |
| Ramming, R. W., Wichita Falls | 6.10 | 8.85 |
| Ramming, Staley & Ramming, Wichita Falls | 635.93 | 981.60 |
| Ramming, W. F., Wichita Falls | 157.54 | 267.82 |
| Republic Production Co., Houston | 758,447.32 | 855,303.35 |
| Rentex Oil Co., San Antonio | 7,931.99 | 8,838.37 |
| Rock Creek Oil Corp., Amarillo | 21,824.80 | 17,635.41 |
| Reserve Petroleum Co. of Texas, Tulsa, Okla. | 677.80 | 1,144.97 |
| Ranell Oil Co., Oklahoma City, Okla. | 5,720.40 | 9,013.69 |
| Rio Bravo Oil Co., Houston | 538,454.90 | 678,275.48 |
| Robertson Drilling Co., Fort Worth | 1,643.68 | 2,547.73 |
| Reeder & Scarborough, Wichita Falls | 1,103.06 | 1,764.91 |
| Robinson, J. B., attorney, Sour Lake | 218.58 | 284.15 |
| Rochmill, Henry, trustee, Fort Worth | 491.26 | 736.89 |
| Root, C. M., Eastland | 9,071.00 | 14,515.00 |
| Root, Rhodes et al, Eastland | 8,006.00 | 13,718.00 |
| Root, Rhodes et al, Eastland | 1,021.00 | 1,890.00 |
| Root & Rhodes, Eastland | 6,033.00 | 9,628.00 |
| Root & Fehl, Eastland | 11,690.00 | 17,943.00 |
| Root Drilling Co. et al, Eastland | 11,895.00 | 18,753.00 |
| Rock Island Oil Co., Amarillo | 696.41 | 824.14 |
| Ruyle Farm & Oil Co., Wichita Falls | 7,203.65 | 11,860.27 |
| Ryan Consolidated Petroleum Corp., Tulsa, Okla. | 95,495.07 | 150,645.83 |
| Reeder, R. S., et al, Wichita Falls | 7,190.56 | 11,599.06 |
| Rexal Petroleum Corp., San Antonio | 70,217.80 | 84,377.59 |
| Rathke Oil Co., Wichita Falls | 27,222.73 | 44,469.45 |
| Red River Oil Co., Tulsa, Okla. | 16,638.05 | 26,716.37 |
| Roberts, H. W., Wichita Falls | 2,566.37 | 4,223.86 |
| Ramsey & Decker, Breckenridge | 3,884.48 | 5,352.24 |
| Russell & Wilson, Wichita Falls | 4,543.57 | 6,534.44 |
| Robertson, R. R., Wichita Falls | 15,840.24 | 22,752.25 |
| Ramsel, W. T., Oil Co., Rockdale | 1,830.10 | 2,726.85 |
| Robert Oil Corp., Breckenridge | 37,814.49 | 60,438.83 |
| Ramsey & Decker,. Breckenridge | 1,505.02 | 2,267.71 |
| Ruthada Oil Co., Oklahoma City, Okla. | 13,127.59 | 14,322.99 |
| Red Bank Oil Co., Tulsa, Okla. | 15,933.95 | 24,598.05 |
| Rycade Oil Corp., Houston | 149,115.94 | 162,038.67 |
| Richards, M. L., Wichita Falls | 427.22 | 666.28 |
| Ramsey, E. H., Rising Star | 565.66 | 993.04 |
| Rhodes & Highers, Breckenridge | 6,124.43 | 10,392.50 |
| Ross Amigos Oil Co., Laredo | 12,931.00 | 11,638.00 |
| Ross Segundo Oil Co., Laredo | 591.17 | 532.05 |
| Ross, James F., Laredo | 3,318.38 | 2,986.52 |
| Robinson, O. D., Pittsburgh, Pa. | 881.85 | 1,061.33 |
| Rockwell, J. A., & Co., Warren, Pa. | 2,269.89 | 3,524.23 |
| Right-of-Way Oil Co., Fort Worth | 508.75 | 708.67 |
| Ray & Massie, Wichita Falls | 20,460.14 | 30,155.68 |
| Riggs & Oliphant, Graham | 14,765.56 | 22,886.62 |
| Redmond, W. J., Brownwood | 615.54 | 981.05 |
| Roeser & Pendleton, Inc., Fort Worth | 354,739.46 | 557,810.51 |
| Reinhart, M. J., trustee, Oklahoma City, Okla. | 536.32 | 855.72 |
| Right-of-Way Oil Co., Fort Worth | 3,876.16 | 4,664.23 |
| Remo Oil Co., Pampa | 431.10 | 610.48 |
| Reed & Parks, et al, Abilene | 4,295.06 | 6,936.83 |
| Ross, Dwight M., Wichita Falls | 895.04 | 1,451.32 |
| Ruby Oil Co., Minerva | 227.92 | 339.57 |
| **S** | | |
| Simms Oil Co., Dallas | 1,945,096.71 | 1,046,497.17 |
| Skinner, E. W., Oil Co., Saratoga | 3,912.61 | 4,935.27 |
| Slicker, Homer, Cisco | 1,361.88 | 1,991.98 |
| Stephens Oil Co., Sour Lake | 428.46 | 514.15 |
| Stephens Oil Co., Sour Lake (6-30-29) | 403.01 | 503.66 |
| Stephens Oil Co., Sour Lake | 494.56 | 642.92 |
| Summit Oil & Refining Corp., Amarillo | 3,933.93 | 5,029.88 |
| Swanner, John L., Wichita Falls | 2,124.64 | 3,399.41 |
| Smith, M. L. V., Vernon | 1,051.48 | 1,333.26 |

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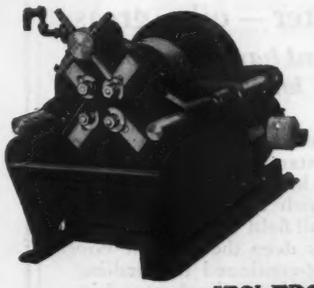
NEW SENSATIONAL "TOLEDO" NO. 999

—is the ½" to 2" pipe machine for which you have been waiting. Combines speed, accuracy and portability to an amazing degree. Equipped with a ½ H.P. Universal Motor, which will operate from any 110-volt current.

A complete threading and cutting unit at the low net price of $275.00.

(West of Rockies, $288.75) F.O.B. TOLEDO



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water — oil — grease
*and have never been known to spark*

There you have two of the outstanding features that make Ferodo Brake and Clutch Linings so valuable in oil field work. No matter how deep the well, or how long-continued the drilling, these bonded asbestos Linings have never been known to spark or burn. And they are so thoroughly impregnated that it is next to impossible for water, oil, or grease to penetrate them.

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K. 12-12-29

FERODO
REGISTERED
FRICTION LINING


| Name and address— | Barrels | Value |
|---|---|---|
| Salado Oil Co., San Antonio | 1,638.53 | 1,929.81 |
| Sigler Oil Co., San Antonio | 1,215.24 | 1,449.41 |
| Somerset Crude Oil & Refining Co., Somerset | 2,725.04 | 3,314.45 |
| Supreme Oil Co., Orange | 2,661.41 | 3,459.82 |
| Swenson, E. P., Strawn | 355.30 | 639.54 |
| Summerfield Oil Co., Tulsa, Okla. | 215.52 | 344.82 |
| Schaffner-Wilson, Markley | 1,650.52 | 2,913.89 |
| Steed, Paul P. and A. R. Gaus, Wichita Falls | 2,182.60 | 3,398.38 |
| Steed, Paul P., Wichita Falls | 374.46 | 524.24 |
| Shallow Sand Oil Co., Fort Worth | 554.41 | 787.81 |
| Southern Petroleum Exploration, Inc., Sistersville, W. Va. | 26,944.72 | 36,639.52 |
| Stella Oil Co., Beaumont | 15,761.21 | 20,489.58 |
| Scarborough & Reeder, Wichita Falls | 768.22 | 1,244.04 |
| Snowden & McSweeney Co., New York, N. Y. | 67,807.26 | 106,336.36 |
| Samuel, Howard, et al, Shawnee, Okla., and Coleman | 386.14 | 422.34 |
| Southern Exploration Co., Houston | 623.51 | 860.10 |
| Sandcreek Oil Co., Amarillo | 4,927.22 | 6,084.07 |
| Scarborough, W. A., Burkburnett | 2,135.75 | 3,226.70 |
| Scarborough & Smith, Burkburnett | 462.54 | 632.04 |
| Smith, McIntosh & Thomas, Cameron | 576.48 | 731.59 |
| Snider, C. W., Wichita Falls | 1,357.09 | 2,289.95 |
| Shaw Oil Co., Wichita Falls | 88,357.93 | 131,374.74 |
| Southern Crude Oil Purchasing Co., Fort Worth | 4,124,464.14 | 3,627,187.73 |
| Southern Oil & Production Co., Eastland (1-1-28 to 6-30-29) | 3,323.08 | 4,108.21 |
| Southern Oil & Production Co., Eastland (1-1-28 to 6-30-29) | 816.40 | 1,134.86 |
| Staley, J. A., Wichita Falls | 1,914.76 | 2,999.87 |
| Stratton, Ed F., Pioneer | 345.44 | 455.68 |
| Strelsky, Joe and Hefley, Rockdale | 463.59 | 709.29 |
| Shoup, O. H., Jr., Colorado Springs, Colo. | 2,501.09 | 4,056.92 |
| Schlicher Oil Co., Beaumont | 736.07 | 988.64 |
| S. & W. Oil Co., Amarillo | 12,595.41 | 12,940.68 |
| Saratoga Oil Co., Wichita Falls | 774.90 | 1,278.58 |
| Shappell Oil Co., Wichita Falls | 63,971.43 | 102,306.43 |
| Sinclair Oil & Gas Co., Houston | 103,723.18 | 131,997.13 |
| Sessions, I. P., Rockdale | 346.79 | 502.87 |
| Shattuck, R. H., Dallas | 3,566.53 | 5,310.80 |
| Smith, Mrs. James L., Amarillo | 7,214.16 | 9,951.06 |
| Smith & Bynum, Amarillo | 1,813.54 | 2,305.37 |
| Sircovich, A. and Mrs. F. M. Thomas, Houston | 511.20 | 511.20 |
| Stidham & Thrasher, Electra | 306.31 | 301.64 |
| Spencer, H. H., & Co., Burkburnett | 178.08 | 293.82 |
| Simmons, T. K., Tulsa, Okla. | 2,386.92 | 3,509.21 |
| Star Drilling Co., Wichita Falls | 9,254.90 | 15,496.84 |
| Schoelfield, R. E., Oklahoma City, Okla. | 362.60 | 447.49 |
| Somerset Oil Co., Somerset | 1,132.56 | 1,338.35 |
| Stovall, E. C., Graham | 57,250.89 | 95,783.22 |
| Stoops, J. P., Ranger | 324.06 | 436.95 |
| Stampfly Kell Oil Co. lease, Archer City | 88.80 | 106.56 |
| Stump, E. J., & Co. and Venmex Oil Co., Wichita Falls | 5,858.96 | 9,374.31 |
| Smith, Levi, et al, Texon | 1,428.70 | 2,270.53 |
| Smith, Levi, and J. C. Shaffer, Texon | 218.64 | 277.05 |
| Smith, Levi, Texon | 840.44 | 1,416.24 |
| Smith, Levi and Fred Hyer, Texon | 790.70 | 1,344.20 |
| Seybert Brothers, Mooringsport, La. | 4,923.16 | 8,628.26 |
| Savoy Oil Co., Tulsa, Okla. | 70,524.51 | 45,613.51 |
| States Oil Corp., Eastland | 41,013.70 | 66,215.85 |
| Skelly Oil Co., Tulsa, Okla. | 1,500,522.74 | 1,844,337.07 |
| Sandefer-Atkinson-Daniel Oil Corp., Breckenridge | 3,516.68 | 5,383.67 |
| Shell Petroleum Corp., St. Louis, Mo. | 2,998,973.85 | 3,110,265.59 |
| South Texas Petroleum Co., Houston | 307,970.11 | 540,489.67 |
| Shasta Oil Co., Wichita Falls | 781.34 | 1,176.04 |
| Staley, Wynne & Co., Wichita Falls | 208,102.08 | 291,909.47 |
| Saigh, N. A., San Antonio | 1,254.76 | 1,698.47 |
| Schermerhorn Oil Co., Minneapolis, Minn. | 200,392.63 | 162,001.15 |
| Syndicate Oil Corp., Rochester, N. Y. | 1,497.57 | 2,672.49 |
| Selby Oil & Gas Co., Tulsa, Okla. | 5,677.15 | 9,969.20 |
| Sprague Oil Co., Ardmore, Okla. | 27,918.21 | 20,762.19 |
| Shaw, Neil K., et al, Brownwood | 90.00 | 112.50 |
| Sterling Oil & Gas Co., Tulsa, Okla. | 125.96 | 151.15 |
| Shamrock Oil & Gas Co., Amarillo | 95,741.17 | 145,869.62 |
| S. & O. Oil Co., Houston | 31,075.76 | 28,075.28 |
| St. Marys Oil & Gas Co., St. Mary, W. Va. | 44,020.64 | 54,677.34 |
| Sedrick Oil Co., Tulsa, Okla. | 12,016.36 | 17,271.75 |
| Simpson-Fell Oil Co., Ardmore, Okla. | 9,562.08 | 14,220.23 |
| Stroube & Stroube, Corsicana | 27,246.90 | 40,707.58 |
| Shaw, T. G., Fort Worth | 113,266.98 | 138,458.27 |
| Schloffke, Edward, Electra | 81.04 | 121.56 |
| Shertzer Brothers, Dewey, Okla. | 6,012.36 | 9,896.84 |
| Smith, W. B., et al, Eastland | 496.94 | 796.94 |
| Standard Oil Land & Leasing Co., Electra | 306.01 | 497.93 |
| Smith, E. L., Oil Co., Inc., Mexia | 145,104.08 | 195,991.00 |
| Schaffner, E. N., Cross Plains | 1,227.51 | 1,704.24 |
| Sink, Joel, Corsicana | 192.00 | 303.00 |
| Sinclair Oil & Gas Co., Tulsa, Okla. | 117,004.01 | 193,217.52 |
| Smith, McIntosh & Thomas, Cameron | 1,346.57 | 2,006.38 |
| Skai-Tex Petroleum Co., Amarillo | 28,523.52 | 35,274.95 |
| Smith, R. E., Houston | 25,355.33 | 31,042.87 |
| Sun Oil Co., Dallas | 1,267,597.99 | 1,508,719.78 |
| Superior Oil Producing Co., Tulsa, Okla. | 3,171.40 | 3,430.17 |
| Sheldon, W. J., Electra | 2,658.10 | 4,449.79 |
| Sheldon, W. J., Electra (6-30-29) | 2,942.89 | 4,543.71 |
| Sheldon, W. J., Electra (6-31-29) | 3,021.12 | 4,095.71 |
| Sheldon, C. P., Electra | 7,165.17 | 11,231.26 |
| Sheffield, Frank H., Beaumont | 3,541.20 | 4,603.55 |
| Staley, J. I., & Co., Wichita Falls | 4,427.13 | 6,836.34 |
| Stock, H. I., Cisco | 1,995.91 | 2,994.46 |
| Scott & Nance, Graham | 2,292.87 | 3,226.17 |
| Scott & Britton, Graham | 228.00 | 333.87 |
| Stekoll, Harry and J. F. Champion, Tulsa, Okla. | 3,252.66 | 2,927.40 |
| Stephen & Fisher, Wichita Falls | 1,005.53 | 1,407.74 |
| Spring Creek Oil Co., Amarillo | 3,769.04 | 4,638.92 |
| Smor Oil Co., Graham | 922.08 | 1,395.00 |
| Saxet Oil Co., Houston | 139,307.34 | 140,606.37 |
| Savoy Oil Co., Tulsa, Okla. | 14,307.78 | 12,408.32 |
| Speed, C. D., Corsicana | 155.37 | 240.83 |
| Scott & Walker, Albany | 6,253.04 | 9,059.44 |
| Seaboard Oil & Gas Co., Wichita Falls | 36,086.08 | 59,042.68 |
| Security Drilling Co., Wichita Falls | 6,956.06 | 11,160.32 |
| Somerset Oil Co., Easthampton, Mass. | 93.00 | 103.80 |
| Savoy Oil Co., Tulsa, Okla. | 14,307.78 | 12,408.32 |
| **T** | | |
| Transcontinental Oil Co., Tulsa, Okla. | 2,775,853.88 | 2,564,622.19 |
| Timblin, W. E., Wichita Falls (6-30-29) | 206.62 | 307.80 |
| Tex Cal Oil Co., Brownwood | 3,197.47 | 4,027.80 |
| Thomas, J. A., Burkburnett | 2,564.48 | 3,907.11 |
| Trinity Townsite Co., Dallas | 713.05 | 1,105.24 |
| Teel Production Co., Breckenridge | 2,451.28 | 3,667.63 |
| Timblin, W. E., Wichita Falls | 208.51 | 344.06 |
| Trimont Petroleum Co., Shreveport, La. | 8,024.90 | 14,390.30 |
| Trinity Production Co., Wichita Falls | 386.16 | 617.86 |
| Triangle Oil & Gas Co., Rockdale | 1,007.62 | 1,495.62 |
| Tannehill, L. B., Albany | 54,068.05 | 85,730.20 |
| Thaxton, W. H., estate, Austin | 318.36 | 493.46 |
| Treat, E. M., Oil & Gas Co., Pittsburgh, Pa. | 2,152.33 | 3,397.37 |
| Turman Oil Co., Tulsa, Okla. | 17,557.28 | 28,090.02 |
| Tripplehorn, D. R., Pampa | 5,932.42 | 9,234.32 |
| Tegler, F. E., San Antonio | 481.87 | 578.84 |
| Texas Fidelity Oil Corp., Fort Worth | 8,000.46 | 14,014.81 |
| Towns, M. K., Luling | 21,792.89 | 27,241.11 |
| Taylor-Link Oil Co., Houston | 63,941.77 | 63,733.36 |
| Talbot & Markle, Houston | 57,700.78 | 69,972.08 |
| Travelers Oil Co., Amarillo | 15,032.04 | 20,020.50 |
| The Texas-Electra Co., Newark, Ohio | 298.56 | 439.86 |
| Texon Oil & Land Co. of Texas, Big Lake | 190,184.96 | 143,093.05 |
| Teatsorth, L., et al, ac. No. 1 Eastland | 2,307.84 | 4,084.56 |
| Teatsorth, L., et al ac. No. 2, Eastland | 824.41 | 1,239.45 |
| Tidal Oil Co., Tulsa, Okla. | 216,362.12 | 236,444.84 |

4
Exclusive Features of "Vulcan Superior"
1 "Overhead" adjustment. The handle is on top, where it's easy to operate.
2 Reversible jaws. When the teeth wear, unscrew the bolts and turn the jaws over.
3 Larger capacity. Each vise takes pipe ½" larger than others of similar size.
4 Chrome-plated finish.
TWO SIZES
No. 11 for ⅛ to 2½ inches
No. 12 for ¼ to 4½ inches
SUPERIOR
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**Adjustment is ON TOP, providing fast and convenient operation.**

**Jaws are REVERSIBLE—doubling the useful life of the tool. Made entirely of tough, wrought steel—no castings are tolerated. Genuine "Vulcan" chain. For convenient operation—rapid action—positive grip—long life, order "Vulcan Superior" today.**

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SUPERIOR
CHAIN PIPE VISE

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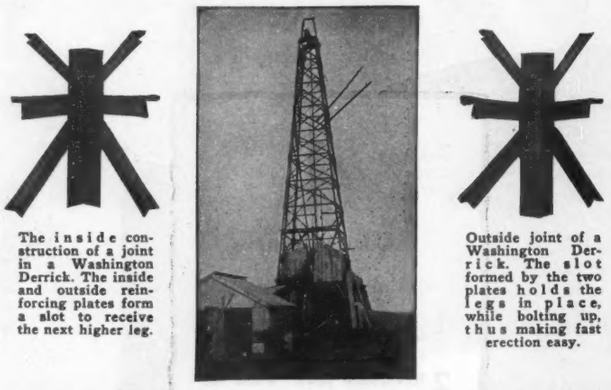

The inside construction of a joint in a Washington Derrick. The inside and outside reinforcing plates form a slot to receive the next higher leg.

Outside joint of a Washington Derrick. The slot formed by the two plates holds the legs in place, while bolting up, thus making fast erection easy.

**WASHINGTON DERRICKS**

*Substantial and Safe in Any Field*

Scientifically designed to meet the tremendous stresses and strains in drilling, there is no uncertainty about what Washington Derricks can do. Two dozen deep wells with a single Washington is not unusual service for these rigs. They are as permanent as it is possible to make them. Rugged, fireproof, windproof, easily erected and dismantled.

A Washington Derrick isn't cheap—but it is THE economical derrick from the time you buy it until the last well it's used on.

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**Washington, Penna.**
*Western Representative:*
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**Box 2004, Tulsa, Okla.**
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| Name and address— | Barrels | Value |
|---|---|---|
| Taylor-Sibley Syndicate, Dallas | 2,324.86 | 3,835.99 |
| Tucker Oil Co., Wichita Falls | 80,238.89 | 121,169.83 |
| Theis Oil Co., Sour Lake | 3,966.72 | 5,156.76 |
| Talley & Irick, Shreveport, La. | 201.36 | 271.84 |
| Tidwell, R. V., trustee, Graham | 4,517.45 | 7,060.49 |
| Tidwell, H. L., trustee, Graham | 1,082.12 | 1,659.83 |
| Triangle Petroleum Co., Inc., The, Fort Worth | 736.58 | 1,257.53 |
| Texas Consolidated Oil Co., San Francisco, Calif. | 13,764.70 | 21,721.61 |
| Tripplehorn, J. W., and D. R., Fort Worth | 3,087.57 | 5,029.54 |
| Townsite Oil Co., Olney | 153.95 | 242.38 |
| Texas Petroleum Co., San Antonio | 39,737.78 | 52,795.02 |
| Tower & McKanna, Inc., Wichita Falls | 11,117.65 | 19,007.48 |
| Tholl Oil Co., Beaumont | 4,166.39 | 7,305.13 |
| Thompson, J. E., Humble | 598.00 | 777.57 |
| Turman & Brown, Fort Worth | 18,183.04 | 22,728.80 |
| Turman, L. C., Fort Worth | 73,139.91 | 71,408.95 |
| Thomasson, E. M., & Co., Inc., Denver, Colo. | 817.42 | 1,035.08 |
| Texas Petroleum Development Co., Cameron | 5,236.09 | 7,917.20 |
| Texota Petroleum Co., Electra | 340.59 | 577.27 |
| Transcontinental Oil Co., Tulsa, Okla. | 19,169.13 | 28,285.76 |
| Transcontinental Oil Co., Tulsa, Okla. | 5,538.54 | 8,202.90 |
| Texas Unity Co., Dallas | 1,251.91 | 2,046.92 |
| The Texas Company, Houston | 4,906,652.09 | 7,080,527.57 |
| Timms, L. W., Oil Corp., Amarillo | 7,683.00 | 11,782.77 |
| Timms-Dietson Oil Corp., Amarillo | 6,254.00 | 9,700.73 |
| Tillman, J. W., Humble | 247.76 | 289.34 |
| Timms-Robinson Oil Corp., Amarillo | 1,281.00 | 1,957.25 |
| Timms-Fogarty Oil Corp., Amarillo | 1,614.00 | 1,535.55 |
| Teatsorth, L., et al, No. 3, Eastland | 260.10 | 448.70 |
| Thornton, A. P., and E. H. Taubert, Wichita Falls | 2,269.89 | 2,974.37 |
| Texas Pacific Coal & Oil Co., (other company for) Thurber. | 67,633.88 | 104,934.44 |
| Texas Pacific Coal & Oil Co., Thurber | 287,172.74 | 368,403.08 |
| Trapshooter Reilly Oil & Royalty Co., San Antonio | 24,149.05 | 22,058.43 |
| U | | |
| United Petroleum Co., The, Brownwood (6-30-29) | 170.04 | 207.82 |
| United Oil Corp., Wichita Falls | 1,581.87 | 2,618.06 |
| Underwood Drilling Co., Wichita Falls (U-C-Ward Lease) | 1,721.52 | 2,681.79 |
| Underwood Drilling Co., Wichita Falls (Ward A Lease) | 3,578.24 | 5,632.99 |
| Underwood Drilling Co., Wichita Falls (Erwin Lease) | 1,720.68 | 2,580.92 |
| Underwood Drilling Co., Wichita Falls (Perkins Lease) | 4,506.32 | 6,977.06 |
| U. S. Oil Co., Amarillo (12-31-28) | 21,378.00 | 26,972.88 |
| U. S. Oil Co., Amarillo (3-31-29) | 32,954.00 | 37,614.28 |
| U. S. Oil Co., Amarillo (6-30-29) | 24,869.00 | 29,030.99 |
| Union Oil & Mining Co., Tulsa, Okla. | 9,784.06 | 14,186.88 |
| Unity Oil Co., Beaumont | 21,996.00 | 28,597.60 |
| Upland Oil Co., Pampa | 10,888.52 | 15,676.76 |
| United Petroleum Co., The, Brownwood | 162.84 | 227.98 |
| United Producers Co., Wichita Falls | 46,615.14 | 75,911.26 |
| Unice & Carpenter, Houston | 2,069.00 | 3,011.35 |
| Union Production Co., Rockdale | 1,144.12 | 6,091.35 |
| V | | |
| Vacuum Oil Co., Houston | 78,582.39 | 123,687.43 |
| Venmex Oil Co. of Texas, Wichita Falls | 54,355.73 | 92,606.26 |
| Val Verde Oil Co., Del Rio | 1,625.00 | 2,031.55 |
| Valerio, Inc., San Antonio | 508.35 | 637.90 |
| Van Wormer, F. E., Wichita Falls | 1,418.86 | 2,341.33 |
| Virginia Oil Anns, Inc., Fort Worth | 2,586.76 | 4,256.40 |
| Van Cleave Trust, Baltimore, Md. | 550.30 | 878.03 |
| Victor Co., The, San Antonio | 972.66 | 1,215.81 |
| W | | |
| Wilder, Jack H., Rice | 838.33 | 1,240.18 |
| Webb Oil Co., Humble | 4,777.44 | 6,210.68 |
| Woodward & Lee, Houston | 2,246.90 | 2,586.41 |
| Walton, T. J., Corsicana | 53.14 | 74.40 |
| Warren-Hayes Oil Corp., et al, Cisco | 2,822.06 | 3,918.87 |
| Worth Oil Co., Wichita Falls | 187.00 | 299.20 |
| Wakefield, M. E., et al, Cross Plains | 135.65 | 228.37 |
| Weller, J. G., et al, Cross Plains | 2,018.87 | 3,411.75 |
| Woody, W. C., Wichita Falls | 706.86 | 1,166.32 |
| Weaver and Pois, Wichita Falls | 2,599.28 | 4,109.60 |
| Witcher, W. C., et al, Wichita Falls | 318.43 | 522.50 |
| Witcher, Annie L., guardian, Wichita Falls | 3,687.25 | 6,283.39 |
| Wills, O. C., Burkburnett | 868.16 | 1,298.41 |
| Weekley Oil Corp., Fort Worth | 4,730.54 | 4,082.44 |
| White, James H., Wichita Falls | 9,281.34 | 14,868.79 |
| Wilbarger Oil Co., Wichita Falls | 2,263.25 | 3,089.79 |
| Wolfe, A. T., Wichita Falls | 3,042.66 | 4,911.30 |
| Wilson-Broach Co., Beaumont | 16,237.92 | 21,109.50 |
| Wilson Drilling Co., "Rathke," Wichita Falls | 3,420.68 | 5,573.39 |
| Wilson Drilling Co., "Snedeker," Wichita Falls | 180.06 | 270.98 |
| Wilson Drilling Co., K. K. "C.", Wichita Falls | 241.18 | 383.79 |
| Wilson Drilling Co., "Comet," Wichita Falls | 3,771.24 | 5,586.75 |
| Wilson Drilling Co., K. K. "A." & "B.", Wichita Falls | 2,662.16 | 4,340.72 |
| Wolf, D. L., Orth | 461.55 | 688.57 |
| Woods & Bennett, Humble | 7,007.21 | 9,081.18 |
| White & Duncan, Wichita Falls | 7,639.68 | 12,376.24 |
| Woodburn Oil Corp., Dallas | 4,030.54 | 6,328.12 |
| Wills Oil Co., Rockdale | 1,360.39 | 2,026.99 |
| Walker, B. S., estate, Breckenridge | 845.30 | 1,181.21 |
| Wichita Production Co., Wichita Falls | 11,371.75 | 17,892.53 |
| West, J. H., Cisco | 5,654.05 | 8,332.63 |
| Welch, B., Cross Plains | 360.83 | 492.72 |
| Wahpoo Oil Co., Rockdale | 1,228.43 | 1,904.07 |
| Why Not Oil Co., Mexia | 8,439.00 | 13,752.79 |
| Waggoner, E. P., and C. F. Kolp, Electra | 12,373.59 | 18,805.36 |
| West, Mrs. Bessie M., Houston | 2,130.96 | 2,770.25 |
| Webb, J. R., and J. H. Bryant, Corsicana | 160.40 | 160.10 |
| Webb, J. R., Corsicana | 199.85 | 309.77 |
| Waggoner Refining Co., Inc., Electra | 400,049.75 | 586,623.22 |
| Ward Oil Corp., Ardmore, Okla. | 128,298.85 | 105,419.99 |
| Whaley Mineral & Realty Trust, Fort Worth | 2,382.11 | 3,609.87 |
| Wilson, Lee, estate, et al, Wichita Falls | 5,702.25 | 9,121.20 |
| Wilcox, H. F., Oil & Gas Co., Tulsa, Okla. | 87,516.62 | 133,540.27 |
| Wood, Benton, Lesh & McCall, Nocona | 5,813.43 | 5,362.76 |
| World Oil Co., Fort Worth | 6,023.89 | 5,120.31 |
| Woods, C. D., and C. C., Ranger | 760.28 | 1,102.40 |
| Whitehill Oil Corp., The, Tulsa, Okla. | 4,079.94 | 6,574.36 |
| Wise & Jackson, Sapulpa, Okla. | 5,079.73 | 7,721.46 |
| West, J. M., trustee, Houston | 11,190.98 | 14,132.91 |
| West Production Co., Houston | 5,727.89 | 6,523.15 |
| Wheelock & Collins, Corsicana | 12,503.99 | 19,674.30 |
| Wentz, L. H., Ponca City, Okla. | 38,986.95 | 42,601.17 |
| Wallace, Chas., Wm., and Hulda B., Wichita Falls | 33,231.27 | 54,970.89 |
| Weller, C. A., Brownwood | 66.34 | 96.10 |
| Westheimer & Daube, Ardmore, Okla. | 1,804.79 | 2,636.46 |
| Weller, H. J., Wichita Falls | 273.72 | 424.28 |
| White Eagle Oil & Refining Co., Kansas City, Mo. | 131,683.00 | 209,140.00 |
| Whitney & Burton Lease and Titus Lease, Breckenridge | 853.58 | 1,093.47 |
| Williams & Williams, Amarillo | 1,202.68 | 1,162.20 |
| Western Oil Sales Corp., Wichita Falls | 2,723.35 | 4,224.51 |
| Wampen Oil Corp. of Texas, Dallas | 506.79 | 791.77 |
| Witherspoon Oil Co. and C. L. Witherspoon, San Antonio | 13,566.62 | 20,516.80 |
| Weister, E. P., Tulsa, Okla. | 4,376.52 | 6,599.32 |
| Walker, A. C., Albany | 3,363.43 | 4,949.92 |
| Woodley Petroleum Co., Shreveport, La. | 11,173.54 | 19,366.39 |
| Wilkins, L. A., Burkburnett | 3,533.44 | 5,476.83 |
| Witherspoon Refining Co., San Antonio | 12,286.38 | 16,796.98 |
| Whitney & Burton Leases, Breckenridge | 247.49 | 284.85 |
| Wise & Porterfield, Graham | 3,156.45 | 4,892.53 |
| Whiteside, J. E., Brownwood | 697.24 | 900.55 |
| Warner-Quinlan Co. of Texas, Dallas | 261,390.44 | 230,689.89 |
| Whiteside, J. H., Gorman | 271.48 | 325.77 |
| Weldon Oil Co., Saratago | 15,945.16 | 17,507.29 |
| Wetzel, Sophie, Oconomwoc, Wis. | 3,289.63 | 3,913.48 |
| West, C. K., Breckenridge | 5,495.99 | 8,243.98 |
| Wallace & Emrick, Minerva | 265.57 | 245.37 |

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| Name and address— | Barrels | Value |
|---|---|---|
| Woods, C. D., and C. C., Ranger | 215.94 | 340.39 |
| Whitney & Burton Leases and Titus Lease, Breckenridge (6-30-29) | 881.80 | 1,099.50 |
| **Y** | | |
| York Petroleum Co., Stamford | 69.16 | 103.74 |
| Yount-Lee Oil Co., Beaumont | 2,451,952.49 | 3,034,238.57 |
| Young Bros. & Alexander, Fort Worth | 15,593.47 | 26,689.31 |
| **Z** | | |
| Zadie Belle Oil Co., Fort Worth | 514.00 | 848.34 |
| Total | 74,630,868.52 | $93,814,047.48 |

## WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

(Continued from Page 52)

**COFFEY COUNTY**

Cross et al's No. 1 Fessen, SW NE Sec. 33-22-14 .....Rig on ground.

**DICKINSON COUNTY**

Cress' No. 1 Sanden, NE cor. Sec. 12-15-2 .....Rig on ground.
Prairie's No. 1 Lachard, C NW SW NE Sec. 12-16-2 ....Rig.
Hiatt & Durham's No. 1 Wendt, NW cor. Sec. 17-16-2 ..Spudding.
Kruger et al's No. 1 Diche, C NW NE NE Sec. 17-13-4 .....Drlg. 2,095 ft.

**DOUGLAS COUNTY**

Jenkins & Scott's No. 1 Haden, SE NW Sec. 10-12-17 ....Drlg. 550 ft.

**EDWARDS COUNTY**

Skelly's No. 1 Johnson, NE SW Sec. 21-26-17w .....Drlg. 1,525 ft.
Barnsdall Oil's No. 1 McCarty, NW NE Sec. 31-25-17w..Rig.
Dixie & Amerada's No. 1 McCarty, SW cor. Sec. 22-25-17w .....Fishing 900 ft.

**ELK COUNTY**

Empire and Arkansas Fuel's No. 1 Record, C NW NE SE Section 32-30-10 .....Drlg. 675 ft.

**ELLIS COUNTY**

Streeter & Stearns' No. 1 Leiker, SW NE Sec. 26-13-20w.Shut down 1,290 ft.
Byrene et al's No. 1 Fisher, NW SE Sec. 4-11-20w ....Shut down 1,000 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w .....Fishing 2,555 ft.

**ELLSWORTH COUNTY**

Tatlock et al's No. 1 Sackem, C SW SE Sec. 25-17-9w ..Shut down 675 ft.
The Texas Company's No. 1 Sherman, NE SW Sec. 16-17-6w .....Drlg. 3,900 ft.

**FORD COUNTY**

McNabb et al's No. 1 Unknown, C SE Sec. 26-27-22w....Shut down 400 ft.
Swain et al's No. 1 Kenthorne, C NW Sec. 21-25-24w..Shut down 390 ft.

**GRAHAM COUNTY**

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w .....Shut down 4,232 ft.
Naylor et al's No. 1 St. John, NW SE SE Sec. 27-8-25w..Rig.

**GREENWOOD COUNTY**

F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12 ..Shut down 50 ft.

**HARPER COUNTY**

Boeler et al's No. 1 Bear, C NE Sec. 21-31-6w .....Shut down 440 ft.
Tom Slick Oil Co.'s No. 1 Thompson, NW cor. Sec. 19-32-6w .....Wilcox 4,975 ft.; Shut down 5,135 ft.; hole full water.

**HARVEY COUNTY**

Walton Oil Co.'s No. 1 Neiman, C NE SE Sec. 13-24-2 ..Shut down 3,310 ft.
Superior's No. 1 Regier, SE NW Sec. 11-22-3w .....Drlg. 1,730 ft.
Independent & Reserve Oil Co.'s No. 1 Moulds, C NE Sec. 7-24-1w .....Drlg. 3,525 ft.
Liggett et al's No. 1 Regier, C SE NW SE Sec. 2-23-3w..Drlg. 2,980 ft.
E. W. Marland, Inc.'s No. 1 Neiman, C NE SE NE Sec. 8-24-2 .....Drlg. 1,975 ft.
McCulloch et al's No. 1 Prouty, NW cor. SW Sec. 3-23-1w .....Drlg. 3,042 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w .....Shut down 3,360 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w..Shut down 3,444 ft.
Jolly & Ogg's No. 1 Hupp, SE cor. NE Sec. 22-23-1w ....Shut down 3,220 ft.

**HODGEMAN COUNTY**

Phillips Pet.'s No. 1 Hausman, NW NE Sec. 30-22-22w..Underreaming 6-in. csg. 4,385 ft.

**JEFFERSON COUNTY**

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 .....Rigged up and shut down.

**KINGMAN COUNTY**

D. P. Fleeger's No. 1 Ashcraft, SE SW NE Sec. 16-28-7w .....Drlg. 3,755 ft.
White Eagle's No. 1 Lorenz, C NE SW SE Sec. 25-27-5w.Drlg. 3,650 ft.

**LANE COUNTY**

Robinson's No. 1 Dickerson, Sec. 11-18-27w .....8-in. csg. 2,625 ft.
Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w .....Spudded and shut down.

**LYON COUNTY**

Gordan-Stats' No. 1 Proche, C NE SE NW Sec. 16-17-10..Drlg. 1,040 ft.
Harry Mortock's No. 1 Dubolt, NW NE Sec. 24-20-1 ....Drlg. 2,032 ft.

**MARION COUNTY**

Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5 ....Rig.
White Eagle's No. 1 Ucker, NE NW Sec. 24-17-2 .....Drlg. 2,750 ft.

**McPHERSON COUNTY**

Dixie Oil Co.'s No. 1 Johnson, SW cor. Sec. 20-17-3w ..Rig.
Harry Skelly et al's No. 1 Neufeldt, SE NE Sec. 19-21-3w.Location.
McCulloch Oil Co.'s No. 1 Cornelius, SW cor. Sec. 7-21-4..Underreaming 6-in. csg. 2,930 ft.
Kansas Oil Co.'s No. 1 Otto, SW NW Sec. 21-20-1w ....Shut down 2,363 ft.
Reynolds et al's No. 1 Koohn, NE SE NE Sec. 15-20-2w ..Drlg. 2,434 ft.
McPherson O. & G. Co.'s No. 1 Fisk, SW NE NE Sec. 15-21-2w .....Drlg. 2,976 ft.
McPherson O. & G. Co.'s No. 1 Sorenson, C SE Sec. 23-18-2w .....Drlg. 3,170 ft.
Milmac's No. 1 Decker, NW cor. Sec. 11-20-3w .....Fishing 1,500 ft.
Perry et al's No. 1 Wade, C SE Sec. 20-19-4w .....Drlg. 3,917 ft.
Transcontinental Oil Co.'s No. 1 Algers, NE SW Sec. 1-19-5w .....Underreaming 6-in. csg. 3,840 ft.

**MORTON COUNTY**

White & Chaney's No. 1 Love, NE cor. Sec. 16-34-42w...Rig on ground.

**MORRIS COUNTY**

Arrow O. & G. Co.'s No. 1 Kinkle, C NW NE Sec. 8-16-7..Drlg. 940 ft.

**NORTON COUNTY**

Richards et al's No. 1 Colby, C SW Sec. 17-4-21w .....Rig on ground.

**NESS COUNTY**

Continental Oil Co.'s No. 1 Moses, NE SE Sec. 7-18-25w .....Drlg. 4,428-31 ft.; swabbed 135 bbls.

**OSBORNE COUNTY**

Phillips Pet. Co.'s No. 1 Grieve, NW SE NE Sec. 6-7-12w..Drlg. 3,670 ft.
Mid-Kansas' No. 1 Boyce, SE cor. NW Sec. 18-6-13w ....Drlg. 3,975 ft.

**PAWNEE COUNTY**

Prairie O. & G. Co.'s No. 1 Black, SW NE NE Sec. 11-20-18w .....Drlg. 735 ft.

**PRATT COUNTY**

O'Haver & Jones' No. 1 Garacke, C NE SW Sec. 7-26-14w .....Drlg. 2,100 ft.
O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w..Shut down 4,682 ft.
Wilcox O. & G. Co.'s No. 1 Unknown, SW NW Sec. 7-26-15w .....Shut down 1,100 ft.

**RENO COUNTY**

Empire O. & R. Co.'s No. 1 Blitz, NE NW Sec. 36-25-4w .....Drlg. 3,400 ft.
Wilcox O. & G. Co.'s No. 1 Unknown, SW NW Sec. 22-26-5w .....Drlg. 2,775 ft.
Witt's No. 1 Olsen, C SE NW Sec. 14-22-6w .....Fishing 2,010 ft.
Skelly Oil Co.'s No. 1 Birkett, NE SW Sec. 30-24-7w ....Drlg. 4,025 ft.

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**RICE COUNTY**
Tatlock et al's No. 1 Ploog, C SW SE, Sec. 33-18-9w ..Rig.
Boucher's No. 1 Bleg, Sec. 16-21-10w .....Drlg. 1,150 ft.
C. P. McBride's No. 1 Green, C NW Sec. 28-19-6w .....Rig on ground.
Miller & Detrick's No. 1 Shumway, C SW Sec. 2-20-9w ...Shut down 3,100 ft.
Burgher's No. 1 Fair, C SE NE NE Sec. 14-21-10w ....Shut down 1,200 ft.
Derby Oil Co.'s No. 1 Johnson, C NW NE SE Sec. 24-20-6w .....Drlg. 1,225 ft.
Milmac's No. 1 Cain, C SE Sec. 29-19-7w .....Drlg. 3,555 ft.
Danciger et al's No. 1 Bell, C SW Sec. 16-19-8w .....Drlg. 1,085 ft.
McCullough et al's No. 1 Williams, C NE Sec. 35-20-8w..Rig.

**RILEY COUNTY**
Arkansas Fuel Oil Co.'s No. 1 Martin, SE NE SW Sec. 24-8-4 .....Drlg. 2,090-92 ft.; hole full water.
Grey et al's No. 1 Smith, NE SE Sec. 30-6-6 .....Shut down 1,970 ft.
Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e..Shut down 2,246 ft.

**RUSSELL COUNTY**
Cress & Hacke's No. 1 Unknown, SE cor. Sec. 6-13-12w..Rig on ground.

**BOOKS COUNTY**
Central Commercial's No. 1 Baxa, Sec. 22-9-17w .....Drlg. 2,985 ft.

**RUSH COUNTY**
Milmac's No. 1 Mohr, C NW Sec. 11-18-16w .....Shut down 50 ft.
Danciger Oil Ref. Co.'s No. 1 Pivonka, NE cor. SW NE Sec. 17-19-17w .....Drlg. 4,130 ft.

**SALINE COUNTY**
Dixie Oil Co.'s No. 1 Thorstenburg, NW NE Sec. 10-16-3w .....Total depth 3,602 ft.; plug back to 3,490 ft.; fishing.
Austin et al's No. 1 Olsen, NW SW SE Sec. 10-15-4w ....Drlg. 3,520 ft.
Templeman's No. 1 Lanbengager, C SW Sec. 20-15-5w ..Drlg. 3,290 ft.
Twin Mounds' No. 1 Weis, NW NE NW Sec. 20-13-4w..Shut down 700 ft.

**SEDGWICK COUNTY**
Moore's No. 1 Stewart, C NE SE NW Sec. 18-28-1w ....Drlg. 3,270 ft.
Tavender et al's No. 1 McLean, SE SW SE Sec. 23-26-1w .....Rig.
Wents Oil Corp.'s No. 1 Allison, NE NW Sec. 24-26-2 ....Abandoned 3,367 ft.
Wilson et al's No. 1 Ottaway, SW NW Sec. 16-28-2w ....Rig.
Marland and Amerada's No. 1 Sensorth, NW cor. Sec. 25-28-4w .....Underreaming 5-in. csg. 3,820 ft.
Barnett O. & G. Co.'s No. 1 Davidson, NW cor. NW SW Sec. 27-26-1e .....Drlg. 3,492 ft.
McCullough Oil Co.'s No. 1 Buckles, NW cor. SE Sec. 3-28-1w .....Fishing 1,115 ft.
LaFont et al's No. 1 Carlton, C SE SE SW Sec. 24-28-1e..Shut down 1,385 ft.

**SHAWNEE COUNTY**
Jenkins & Scott's No. 1 Sherman, NW NE Sec. 28-10-15 .....Drlg. 825 ft.
Jenkins & Scott's No. 1 Haden, NE SE Sec. 8-12-14 ....Shut down 750 ft.

**SHERIDAN COUNTY**
Mandalin O. & G. Co.'s No. 1 Unknown, C SE SW SW Sec. 27-7-26w .....Spudded; shut down.

**SHERMAN COUNTY**
A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w .....Abandoned 3,150 ft.

**STAFFORD COUNTY**
Gibson's No. 1 Mueller, C SW Sec. 11-23-14w .....Shut down 2,015 ft.

**STEVENS COUNTY**
McKenna's No. 1 Unknown, C NW NW Sec. 29-33-36w..Drlg. 2,225 ft.
Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w..Shut down 2,250 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w .....Shut down 1,600 ft.

**SMITH COUNTY**
Phillips Pet.'s No. 1 Clydesdale, SE NW Sec. 23-5-14w..Drlg. 3,520 ft.

**SUMNER COUNTY**
Hatfield's No. 1 Dauber, NE cor. Sec. 18-30-1w .....Shut down 50 ft.
Kingwood Oil Co.'s No. 1 Stayton, C NE Sec. 18-31-2w..Drlg. 3,250 ft.
Slick et al's No. 1 Peasel, NW cor. Sec. 33-31-1w .....Chat 3,670-75 ft.; 300 bbls. showing.
Lario O. & G. Co.'s No. 1 Osborne, NE SE Sec. 21-30-1w .....Fishing 3,300 ft.
E. K. Carey & Larado Oil Co.'s No. 1 Welsch, SW SE Sec. 9-34-1e .....Drlg. 3,227 ft.
Shell Pet. Corp.'s No. 1 Armstrong, NE cor. Sec. 12-33-1e.Drlg. chat 3,400-57 ft.; show oil; underreaming 6-in. csg.; total depth 3,530 ft.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w .....Rig.

**TREGO COUNTY**
Dixie & Amerada's No. 1 Reitmayer, C NE NE Sec. 19-14-21w .....Shut down 825 ft.
Prairie Oil & Gas Co.'s No. 1 Kutina, C NE SW NE Sec. 29-15-21w .....Cleaning out 3,340 ft.
Producers & Refiners Corp.'s No. 1 Kingsley, C SE NW NW Sec. 24-14-21w .....Drlg. 2,735 ft.
Phillips Pet. Co.'s No. 1 Spitz, SE cor. Sec. 24-12-25w ...Drlg. 3,555 ft.
Mid-Kansas' No. 1 Ridgeway, NE SW Sec. 28-12-21w ....Drlg. 4,256 ft.
Day et al's No. 1 Gugler, SW NE NE Sec. 36-13-21w ....Shut down 50 ft.
Day et al's No. 1 Unknown, NE NW SW Sec. 2-11-21w ..Shut down 3,250 ft.

**WASHINGTON COUNTY**
McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3..Shut down 3,100 ft.

**WOODSON COUNTY**
Shaffer & Howell's No. 1 Levering, CSL SE Sec. 12-25-14..Abandoned 1,634 ft.

## WILDCAT OPERATIONS IN NEBRASKA

**FRANKLIN COUNTY**
U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w .....Rig.

**CHASE COUNTY**
Chase Pet. Co.'s No. 1 Ingold, C NE Sec. 24-6n-38w ....Shut down 4,200 ft.; will run 5-in. csg.

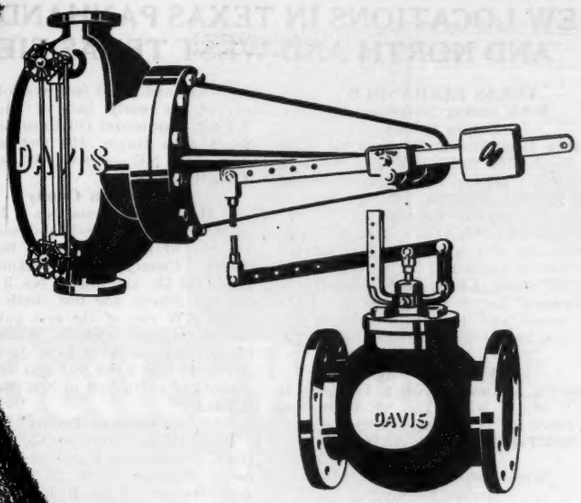
**FURNAS COUNTY**
Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w .....Shut down 1,750 ft.
Graham Bros.' No. 1 Edwards, NW SW Sec. 13-2n-22w..Shut down 3,250 ft.

**RICHARDSON COUNTY**
Norton et al's No. 1 Hauser, NE cor. Sec. 26-1-14 .....Location.

**WEBSTER COUNTY**
Mid-Kansas Exploration Co.'s No. 1 Platt, C SE one-half Sec. 3-1n-11w .....Shut down 555 ft.

## DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

| | Month of Oct., 1928 | Month of Oct., 1929 | Ten mos. ended Oct., 1928 | Ten mos. ended Oct., 1929 |
|---|---|---|---|---|
| Petroleum—Crude .....Bbls. | 2,015,504 | 2,868,807 | 15,741,407 | 21,725,716 |
| Petroleum—Crude .....$ | 3,089,079 | 4,334,543 | 22,267,826 | 30,796,829 |
| Total refined petroleum .....Bbls. | 9,533,488 | 13,092,268 | 106,497,012 | 105,316,366 |
| Total refined petroleum .....$ | 37,382,973 | 45,529,007 | 388,397,315 | 416,234,898 |
| Gasoline, naphtha and other light products .....Bbls. | 3,967,815 | 5,967,128 | 43,471,712 | 50,100,015 |
| Gasoline, naphtha and other light products .....$ | 19,271,072 | 26,341,039 | 192,171,668 | 224,042,053 |
| Oils, illuminating .....Bbls. | 1,748,787 | 2,237,235 | 18,536,009 | 16,841,950 |
| Oils, illuminating .....$ | 8,150,837 | 9,051,174 | 78,943,207 | 71,691,208 |
| Gas and fuel .....Bbls. | 3,049,033 | 3,815,070 | 35,242,197 | 29,044,147 |
| Gas and fuel .....$ | 2,957,162 | 4,360,522 | 38,659,344 | 30,637,321 |
| Lubricating .....Bbls. | 751,429 | 1,056,924 | 9,099,615 | 9,173,382 |
| Lubricating .....$ | 6,790,082 | 9,566,694 | 76,846,008 | 87,663,630 |
| Other refined petroleum .....Bbls. | 16,424 | 15,911 | 146,479 | 156,872 |
| Other refined petroleum .....$ | 213,320 | 209,578 | 1,777,088 | 2,200,686 |
| Paraffin wax .....Bbls. | 26,275,176 | 39,035,727 | 340,883,483 | 266,158,041 |
| Paraffin wax .....$ | 1,286,066 | 1,576,419 | 14,173,233 | 11,959,593 |

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The OIL and GAS JOURNAL

# NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

**TEXAS PANHANDLE**

**Week ending November 27**

**Carson County**

Ryan Consolidated Oil Co.'s No. 7 B. F. Block, 330 feet north and 990 feet west of the SE cor. of the NE of Section 111, Block 4, I.&G.N.

**Gray County**

Tripplehorn Oil Co.'s No. 1 J. S. Morse, 330 feet north and east of the SW cor. of the S half of the SE of Section 17, Block A-9, H.&G.N. The Texas Company's No. 8 Cook-Faulkner, 1,158 feet north and 1,835 feet west of the SE cor. of Section 29, Block B-2, H.& G.N.

**Wheeler County**

Martin & Debous' No. 2 I. Close, at the C of the NE of the NE of Section 83, Block 23, H.&G.N.

**NORTH CENTRAL AND WEST TEXAS**

**Week ending November 27**

**Archer County**

L. T. Burns' No. 4 L. F. Wilson-P, 400 feet south and 600 feet west of the NE cor. of Section 115, A.T.N.C.L. Survey. Burns & Long's No. 6 J. H. Turbeville, 1,170 feet north and 750 feet east of the SW cor. of Section 152, R. Carson Survey. Pace and others' No. 1 W. E. Wolf, 150 feet north and 450 feet east of the SW cor. of the W. E. Wolf 51-acre tract out of the B. J. Howard Survey, A-179. Shappell Oil Co.'s No. 14 J. D. Lyles, 450 feet north and 750 feet east of the SW cor. of the NW of the NE of Section 7, Hooper & Wade Survey, A-234. E. J. Stump & Co.'s No. 1 H. Ford, 150 feet south and 1,200 feet west of the most easterly NE cor. of the D. Meyer Survey No. 10, A-278.

United Producers Co.'s No 1 J. R. Parkey, 1,250 feet north and 150 feet east of the SW cor. of the south 50.39 acres of the north 61 acres of the J. R. Parkey 114-acre tract out of Section 2, A.T.N.C.L. W. D. Cline's No. 1 R. Horcky, 1,373 feet south and 150 feet east of the NW cor. of Section 37, G. P. Meade Subdivision, L. M. Pasture. W. R. Duke and others' No. 2 W. T. Richardson, 150 feet south and east of the NW cor. of the south 40 acres of the west 80 acres of Section 2,425, T. E. &L. Gilliland & Rosser's No. 1 J. S. Walsh, 479 feet south and 750 feet east of the NW cor. of the southwest 40 acres (square) of Section 2,416, T.E.&L. Golding & Cochran's No. 2 C. H. Keike, 1,600 feet south and 150 feet east of the NW cor. of Section 25, G. P. Meade Subdivision, L. M. Pasture. Key & Leath's No. 2 W. J. Logan, 150 feet south and 1,650 feet east of the NW cor. of the S half of Section 23, J. M. Taylor Survey, A-651. Panhandle Refining Co.'s No. 1 J. G. Cockrell, 150 feet north and west of the SE corner of the north half of the SW of Section 2,450, T.E.&L. Shell Petroleum Co.'s No. 1 Dupriest, 450 feet south and west of NE cor. east 60 acres of north 110 acres Section 2,490, T.E.&L. Sun Oil Co.'s No. 10 W. T. Richardson. 150 feet north and east of SW cor. of their 10-acre lease out of Section 2,425, T.E.&L.

**Baylor County**

Grisham & Barnsdall Oil Co.'s No. 1 W. H. Portwood-A, 150 feet north and east of the SW cor. of the NW Section 1,574, T.E.&L.

**Brown County**

G. A. Buder, trustee, No. 8 N. E. Munselle, 150 feet south and 1,752 feet west of the NE cor. of his 80-acre lease out of the W. Ahrenbeck & Brother Survey No. 3, A-20. A. B. Gordon and others No. 5 S. B. Cannon-A, 450 feet north and west of SE cor. of his 40-acre lease "A" out of the W. Ahrenbeck & Bro. Survey No. 3, A-20. S. B. Owens, Inc., No. 1 J. E. Whiteside, 780 feet south and 450 feet east of NW cor. of the J. E. Whiteside 238-acre tract out of the C. B. Banister Survey No. 627. E. L. Smith Oil Co.'s No. 15 L. A. George, 1,600 feet north and 500 feet east of SW cor. of the L. A. George tract out of Section 42, H.T.&B.. Tylee and others' No. 1 I. B. Gaines, 150 feet south and 2,130 feet west of the NE cor. of the south half of Section 43, H.T.&B. Paramount Oil Royalties Corp.'s No. 1 John Guyer, 150 feet south and west of the NE cor. SW SW Section 22, H.T.&B.

**Callahan County**

T. Holden and others' No. 2 J. L. Cavanaugh, 450 feet north and east of the SW cor. of the east half of Section 98, Comal County School Land. Mook-Texas Oil Co. and others' No. 3 F. Johnson and others, 450 feet south and east of the NW cor. of the east half of Section 83, Comal County School Land. Union Oil Co.'s No. 1 I. N. Jackson, 150 feet south and 2,062 feet east of the NW cor. of the south half of NW Section 20, E.T.R.R.

**Coleman County**

Broderick & Calvert's No. 2 N. B. Buck, 200 feet north and west of the SE cor N 50 acres of the N. B. Buck 100-acre tract out of the R. Cochran Survey No. 269. Eastland Oil Co.'s No. 2 J. J. Crowder, 515 feet south and 150 feet west of the NE cor. W 40 acres of the N 100 acres of the J. J. Crowder 240-acre tract out of the J. H. Wood Survey No. 483. Gutzman & Aldrich's No. 1 Sealy & Smith, 500 feet south and 620 feet west of the NE cor. Section 87, Block 2, G.H.& H. Permian Oil and Gibson & Johnson's No. 6 J. J. Crowder, 515 feet south and 150 feet east of the NW cor. W 20 acres of the E 60 acres of the N 100 acres of the J. J. Crowder 240-acre tract out of the J. H. Wood Survey No. 483. Brown and others' No. 2 H. A. Turner estate, 1,700 feet north and 4,110 feet west of the SE cor. of the R. Wilson Survey No. 334.

**Comanche County**

Lone Star Gas Co.'s No. 1 C. B. Frost, 500 feet north and west of the SE cor. Section 4, T.&N.O.

**Cooke County**

Lloyd Oil Corp.'s No. 6 D. B. Wheelock, 815 feet north and 1,480 feet west of the SE cor. of the C. Underwood Survey A-1,073. Same corporation's No. 7 Wheelock, 485 feet north and 100 feet west of the SE cor. of the C. Underwood Survey A-1,073.

**Eastland County**

W. Harbin's No. 1 J. Harbin, 200 feet south and 500 feet east of the NW cor. of Section 15, Block 2, H.&T.C. Lone Star Gas Co.'s No. 4 O. P. Storm, 660 feet south and west of the NE cor. of the W half of Section 482, S.P.R.R. Texas Development Co.'s No. 2 M. B. Westlenholm, 200 feet south and west of the NE cor. of the W half of the NE of Section 44, Block 4, H.&T.C.

**Erath County**

Fletcher & Moore's No. 2 Cage & Mulloy, 500 feet south and 600 feet west of the NE cor. of the Cage & Mulloy 100-acre tract out of the J. Bishop Survey. Same company's No. 1 J. E. Smith, 1,450 feet north and 400 feet east of the SW cor. of the J. Bishop Survey.

**Howard County**

Amerada Petroleum and Rycade Oil Corp.'s No. 14 D. Roberts, 250 feet south and 1,855 feet west of the NE cor. of Section 137, Block 29, W.&N.W.R.R. Continental Oil Co.'s No. 3 H. R. Clay-E, 1,650 feet north and 990 feet west of the SE cor. of Section 138, Block 29, W.& N.W.R.R. Group No. 1 Oil Co. and Continental Oil Co.'s No. 10 W. R. Settles-A, 280 feet south and 400 feet west of the NE cor. of Section 158, Block 29, W.&N.W.R.R. Midwest Exploration Co.'s No. 5 H. R. Clay-C, 990 feet north and west of the SE cor. of Section 138, Block 29, W.&N.W.R.R.

**Jack County**

L. C. Harper's No. 3 W. R. Ezell, 1,050 feet north and 200 feet west of the SE cor. of the west 42 acres of the W. R. Ezell 102-acre tract out of the I. Hughson Survey A-256. L. C. Harper's No. 4 W. R. Ezell, 1,050 feet north and 200 feet east of the SW cor. of the W. R. Ezell 102-acre tract out of the I. Hughson Survey A-256. Republic Production Co.'s No. 2 W. R. Ezell, 1,058 feet north

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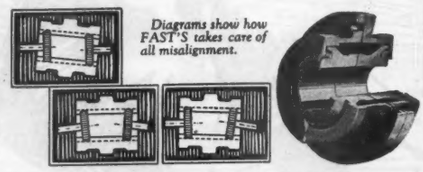

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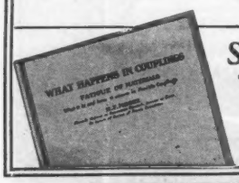

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and 200 feet east of the SW cor. of the east 60 acres of the W. R. Ezell 102-acre tract out of the I. Hughson Survey A-256.

**Montague County**

Continental Oil Co.'s No. 26 N. J. Howard and others, 150 feet north and west of the SE cor. of the John Chambliss Survey A-123. Continental Oil Co. & Bridwell Oil Co.'s No. 2 L. Cunningham-C, 5,938 feet north and 150 feet west of the SE cor. of the T. R. Edmondson Survey A-222. The Texas Company's No. 4 R. W. Cunningham and others-A, 150 feet north and west of the SE cor. of their 60-acre lease "A" and located in the L. B. Norton Survey A-574.

**Palo Pinto County**

Mingus Gas Co.'s No. 1 John Slemmons, 365 feet south and 350 feet west of the NE cor. of the NW of Section 45, Block 3, T.&P. Survey. M. L. Richardson and others' No. 1 J. T. Holt Estate, 150 feet north and 300 feet west of the SE cor. of the W. H. Lewis Survey A-1,043. Texas Pacific Coal & Oil Co.'s No. 163 S. J. Stuart and others, 1,050 feet south and 1,680 feet west of the NE cor. of Section 71, Block 4, T.&P. Survey.

**Pecos County**

M. H. Black and others' No. 1 Pecos Valley Oil Co., 160 feet NE of the SW line and 160 feet NW of the SE line of the SW 40 acres of the NW 80 acres of the SW 160 acres of the SE 320 acres of Section 34, Block 3, H.&T.C. Survey. California Co.'s No. 9 Smith, Lease 1, 330 feet north and 1,710 feet east of the SW cor. of Section 23, Block 194, G.&S.F. Survey. Freeman & Miller's No. 1 Pecos Valley Oil Co., 150 feet SE of the NW line and 150 feet NE of the SW line of the NE 80 acres of the SW 160 acres of the SE 320 acres of Section 36, Block 3, H.&T.C. Survey. Kirby Petroleum Co.'s No. 1 Belgrade Ranch Co., 350 feet south and west of the NE cor. of Section 2, T.&R.R. Survey A-5,988. Landreth Production Corp.'s No. 7 University-A, 990 feet south and east of the NW cor. of the E half of the SE of Section 13, Block 18, University Land. Same corporation's No. 8 University-A, 990 feet north and west of the SE cor. of Section 13, Block 18, University Land. Landreth Production and Henshaw Brothers' No. 2 University-F, 330 feet south and east of the NW cor. of the E half of the SW of Section 31, Block 16, University Land. Landreth Production and World Oil Co.'s No. 7 University-B, 330 feet north and east of the SW cor. of the E half of the NE of Section 13, Block 18, University Land. Taylor-Link Oil Co.'s No. 11 University, 330 feet north and 990 feet east of the SW cor. of the W half of the SE of Section 13, Block 18, University Land.

**Upton County**

Texas Pacific Coal & Oil Co.'s No. 1 A. A. Reese, 330 feet south and west of the NE cor. of Section 2, Block 3, M.K.& T. Survey. T. P. Coal & Oil Co. and Simms Petroleum Co.'s No. 1 J. F. Lane, 430 feet north and 330 feet east of the SW cor. of Section 36, Block 1, M.K.&T. Survey.

**Shackelford County**

Hart & Gist's No. 2 A. A. Clark, 870 feet south and east of the NW cor. of the NE of Section 2, Blind Asylum Land. Hart & Gist's No. 1 T. A. Deats, 750 feet north and 150 feet east of the SW cor. of the W 40 acres of the SE of Section 20, Block 11, T.&P. Survey. Merry Brothers, Perini and Tidal's No. 1 W. Y. & R. A. Davis (Section 15), at the center of the NE of Section 15, Block 12, T.&P. Survey. C. Morton's No. 1 W. H. Green, 1,000 feet SW of the NE line and 600 feet NW of the SE line of Section 811, T.E.&L. Survey. Moutray Oil Co.'s No. 3 Nail, 1,770 feet north and 210 feet west of the SE cor. of Section 40, Block 10, E.T.R.R. Survey. Simms Petroleum Co.s No. 11 H. A. Lones, 200 feet north and east of the SW cor. of the E half of Section 64, Block 11, T.&P. Survey. Tannehill and others' No. 7 J. B. Matthews, 750 feet north and 450 feet east of the SW cor. of the SE of the SE of Section 34, Block 10, E.T.R.R. Survey. Tannehill and others' No. 28 W. P. Newell, 1,258 feet north and 2,502 feet west of the SE cor. of Section 11, Block 11, T.&P. Survey. The Texas Company's No. 1 A. Cutbirth, 1,325 feet south and 1,289 feet east of the NW cor. of Section 82, Block 12, T.&P. Survey. Vacuum Oil Co.'s No. 6 J. B. Matthews-C, 490 feet south and 510 feet east of the NW cor. of the NW of the SW of Section 29, Block 10, E.T.R.R. Survey.

**Stephens County**

H. Heath's No. 1 A. J. Beck, 150 feet north and east of the SW cor. of the A. J. Beck 80-acre tract out of Section 49, Block 6, T.&P. Survey. Lone Star Gas Co.'s No. 3 Brooks, 660 feet west of the SE cor. of Section 54, Block 7, T.&P. Survey. Lone Star Gas Co.'s No. 3 L. A. Calloway, 684 feet south and 687 feet east of the NW cor. of Section 2, Block C, S.P.R.R. Survey. Same company's No. 1 G. W. Elliott, 660 feet south and west of the NE cor. of Section 1, Block C, S.P.R.R. Survey. Texas Pacific Coal & Oil Co.'s No. 77 Charles Binney, 2,000 feet south and 800 feet east of the NW cor. of Section 45, Block 4, T.&P. Survey.

**Wichita County**

Duncan & White's No. 2 D. G. Parker, 450 feet south and west of the NE cor. of Section 18, Palo Pinto County School Land, A-241. Mid-Continent Holding Co. and others' No. 7 M. G. Wilkerson and others, 150 feet south and 476 feet west of the NE cor. of Section 3, J. M. McCool Survey A-192. Same company's No. 8 M. G. Wilkerson and others, 447 feet south and 150 feet west of the NE cor. of Section 3, J. M. McCool Survey A-192. E. J. Stump's No. 1 W. H. Chilson, 1,170 feet north and 150 feet east of the SW cor. of Section 3, West Subdivision, M. Ramsey Survey A-471. Arkansas Fuel Oil Co.'s No. 33 Kemp & Kempner-B, 1,200 feet south and 150 feet west of the SE cor. of Block 81, and located in Block 82, Kemp Wichita Valley Land. Same company's No. 34 Kemp & Kempner-B, 1,326 feet south and 1,710 feet west of the NE cor. of Block 82, Kemp Wichita Valley Land. Same company's No. 35 Kemp & Kempner-B, 106 feet south and 150 feet east of the NW cor. of Lot 20, Block 45, Kemp Wichita Valley Land. Same company's No. 1 Kemp & Kempner-C, at the center of the NW of Block 62, Kemp Wichita Valley Land. Everts & Jamison's No. 3 S. P. Gibson, 150 feet north and 750 feet east of the SW cor. of Section 302, Waggoner Colony Subdivision. H. Hobbs' No. 1 W. L. Warren, 150 feet south and west of the NE cor. of Block 32, Kemp Wichita Valley Land. Humble Oil & Refining Co.'s No. 18 W. H. Taylor, 454 feet north and 800 feet west of the SE cor. of Block 81, Kemp Wichita Valley Land. T. F. Hunter's No. 10 J. L. & T. J. Waggoner-C, 200 feet south and 467 feet east of the NW cor. of the H. George Survey A-454.

**Wilbarger County**

Atlantic Oil Producing Co.'s No. 6 W. T. Waggoner (Sigler), 510 feet south and 1,977 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Cosden Oil Co.'s No. 6 Waggoner-D, 1,861 feet south and 1,030 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Davis Oil Corp.'s No. 4 W. T. Waggoner, 1,161 feet south and 750 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Lido Oil Co.'s No. 1 Waggoner-C, 810 feet south and 1,977 feet west of the SE cor. of Section 35, Block 2, H.&T.C. W. M. Moore's No. 1 W. T. Waggoner, 1,650 feet north and 3,373 feet east of the SW cor. of Section 106, Block 14, H.&T.C. The Texas Company's No. 368 W. T. Waggoner, 1,650 feet south and 876 feet west of the NE cor. of Section 5, Block 13, H.&T.C. The Texas Company's No. 369 W. T. Waggoner, 1,883 feet south and 1,900 feet west of the SW cor. of Section 19, G.C.&S.F., A-359 and located in Section 1, T.C.R.R.

**Young County**

Goldsmith & King Royalty Co.'s No. 6 H. O. Kunkel, 1,050 feet south and 150 feet east of the NW cor. of the S half of the west 80 acres of the H. O. Kunkel 252-acre tract out of the G. W. Stell Survey, A-256. A. H. Parks and others' No. 3 F. M. Cullers, 450 feet

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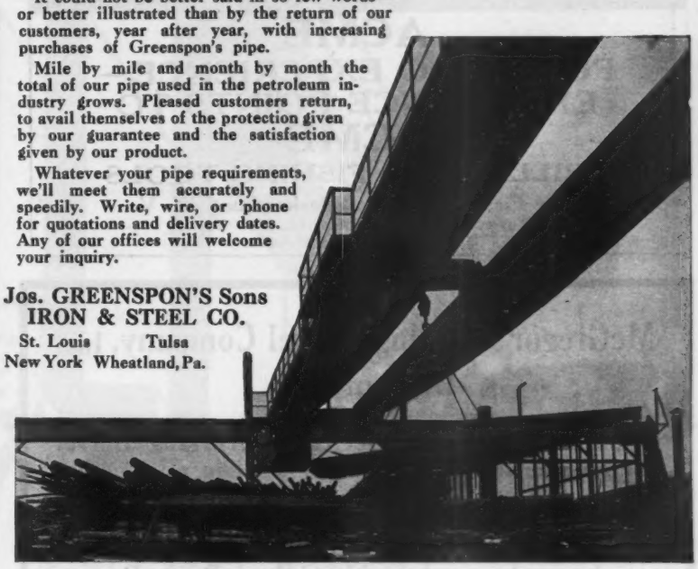

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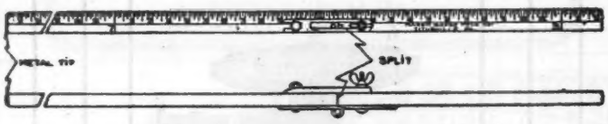


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south and 425 feet west of the NE cor. of the SE of the SW of Section 2, C.T. R.R. The Texas Company's No. 1 M. A. Hoffman, 2,096 feet northeast of the southwest line and 1,250 feet northwest of the southeast line of the P. Averett Survey, A-2. Wise & Porterfield's No. 3 F. M. Cullers, 150 feet north and 450 feet west of the SE cor. of the NE of the SW of Section 2, C.T.R.R. Lindsey Drilling Co.'s No. 1 A. B. Perry, 790 feet north 45 degrees west of the NW cor. of the A. W. Perry 126.5-acre tract and located in the A. B. Perry 268-acre tract out of the O. T. Brown Survey, A-24. L. A. Long and others' No. 1 R. M. Williams-B, 450 feet southeast of the northeast line and 700 feet northwest of the southeast line of the R. O. Wiilfork Survey, A-1,278.

**Corrections**

Baylor County—Grisham & Barnsdall Oil Co.'s No. 1 W. H. Portwood, 150 feet north and east of the SW cor. of the SE of Section 1,281, T.E.&L.

Eastland County—J. M. Gholson and others' No. 3 Fox, 825 feet south and 525 feet west of the NE cor. of Section 28, League 2, McLennan County School Land.

Erath County—Lone Star Gas Co.'s No. 2 Cage, 660 feet south and east of the SW cor. of the A. R. Ross 100-acre tract and located on the J. M. Cage tract out of the J. Latham Survey.

Glasscock County—World Oil Co.'s No. 2 L. S. McDowell and others-C, 1,650 feet south and 2,310 feet east of the NW cor. of Section 21, Block 34, T-2-S, T.&P.

Howard County—The California Co.'s No. 9 D. Roberts, Lease 2, 330 feet north and west of the SE cor. of Section 137, Block 29, W.&N.W.R.R.

In Howard County: Simms Petroleum Co.'s No. 2 H. R. Clay, 330 feet north and 2,310 feet east of the SW cor. of Section 127, Block 29, W.&N.W.R.R.

Jones County—Mid-Tex Oil & Gas Co.'s No. 1 W. A. Minter, 765 feet south and 1,819 feet east of the NW cor. of Section 41, Block 15, T.&P.

Palo Pinto County—O. C. Proffitt's No. 1 R. S. Dalton, 150 feet south and 700 feet east of the NW cor. of Section 1,787, T.E.&L.

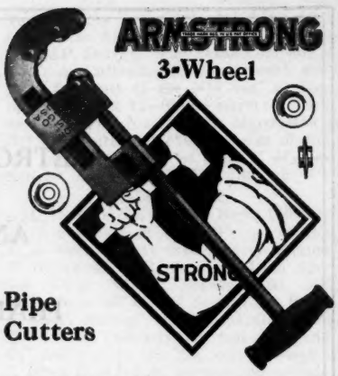
Pecos County—Landreth Production and Henshaw Brothers' No. 2 University-E, 990 feet south and 330 feet east of the NE cor. of the W half of the NE of Section 13, Block 18, University Land. Landreth Production Corp. and others' No. 1 University Land-I, 330 feet south and west of the NE cor. of Section 24, Block 18, University Land. The Texas Company's No. 1 C. Graef, 908 feet north and 4,758 feet east of the SW cor. of Section 44½, Block 12, H.&G.N.

Shackelford County—Vacuum Oil Co.'s No. 4 J. B. Matthews-C, 490 feet south and 150 feet east of the NW cor. of the NW of the SW of Section 29, Block 10, E.T.R.R.

Stephens County—Lone Star Gas Co.'s No. 3 H. B. Henry, 556 feet north and 660 feet east of the SW cor. of Section 53, Block 7, T.&P.

Wichita County—Mid-Continent Holding Corp. and others' No. 1 M. G. Wilkerson and others, 425 feet south and 149 feet west of the NE cor. of Section 3, J. M. McCool Survey, A-192. H. Hobbs' No. 1 Munger, 150 feet north and 128 feet west of the SE cor. of Block 31, Kemp Wichita Valley Land.

Wilbarger County—Davis Oil Corp.'s No. 3 Waggoner, 1,161 feet south and 450 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Waggoner Refining Co.'s No. 1 Waggoner-P, 150 feet south and 1,677 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Same company's No. 2 Waggoner-P, 450 feet south and 1,677 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Same company's No. 3 Waggoner-P, 750 feet south and 1,677 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Same company's No. 4 Waggoner-P, 1,050 feet south and 1,677 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Zenith Oil Co.'s No. 1 Waggoner, 510 feet north and 150 feet west of the SE cor. of the NW of the SE of Section 101, Block 14, H.&T.C.

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Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

# Oklahoma-Kansas and Eastern Pipe Line Report

## OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR OCTOBER

### Runs

| Company— | Month (bbls.) | Dy. av. (bbls.) |
|---|---|---|
| Prairie P. L. Co.* | 4,650,000 | 150,000 |
| Gulf P. L. Co. | 1,875,230 | 60,491 |
| Texas P. L. Co. | 861,578 | 27,793 |
| Magnolia P. L. Co. | 1,698,958 | 54,805 |
| Empire P. L. Co. | 1,854,839 | 59,834 |
| Cosden P. L. Co. | 858,392 | 27,690 |
| Sinclair P. L. Co.* | 2,914,000 | 94,000 |
| Oklahoma P. L. Co. | 3,787,262 | 122,170 |
| Other lines* | 5,766,000 | 186,000 |
| Total October | 24,266,273 | 782,783 |
| Total September | 25,182,730 | 839,424 |
| Difference | 916,457 | 56,641 |

### Shipments

| Company— | Month (bbls.) | Dy. av. (bbls.) |
|---|---|---|
| Prairie P. L. Co.† | 6,429,164 | 207,392 |
| Gulf P. L. Co. | 1,954,384 | 63,045 |
| Texas P. L. Co. | 1,428,410 | 46,078 |
| Magnolia Pet. Co. | 2,331,413 | 75,207 |
| Empire P. L. Co. | 1,506,415 | 48,594 |
| Cosden P. L. Co. | 709,979 | 22,903 |
| Sinclair P. L. Co.† | 3,451,089 | 111,325 |
| Oklahoma P. L. Co. | 3,312,149 | 106,843 |
| Other lines | 6,510,000 | 210,000 |
| Total October | 27,633,003 | 891,388 |
| Total September | 27,081,813 | 902,728 |
| Difference | 551,190 | 11,340 |

### Stocks

| | Bbls. |
|---|---|
| Prairie Oil & Gas Co. | 38,028,000 |
| Gulf P. L. and Gypsy Oil Co. | 10,171,685 |
| The Texas Company | 7,481,970 |
| Magnolia Petroleum Co. | 8,718,142 |
| Empire Oil & Refining Co. | 5,568,071 |
| Mid-Continent Petroleum Corp. | 3,502,252 |
| Sinclair Crude Oil Pur. Co. | 20,240,000 |
| Carter Oil Co. | 9,445,395 |
| Oklahoma Pipe Line Co. | 3,889,443 |
| Other companies | 25,998,000 |
| Total October | 133,042,778 |
| Total September | 134,642,776 |
| Difference | 1,599,998 |

*Estimated. †Prairie and Sinclair shipments include Texas crude oil.

## EASTERN PIPE LINE REPORTS

### Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for September and October:

| | Sept., 1929 | Oct., 1929 |
|---|---|---|
| Nat. Transit | 294,748.89 | 404,122.07 |
| S. W. Pa. P. L. | 89,643.06 | 94,485.54 |
| Eureka P. L. | 357,703.92 | 407,867.33 |
| Buckeye P. L. (Macksb'g.) | 331,428.55 | 368,647.95 |
| Buckeye P. L. (Cleve.) | 10,770.51 | 12,971.28 |
| Buckeye P. L. (Lima, etc.) | 103,534.37 | 111,929.62 |
| Indiana P. L. | 5,270.40 | 5,168.79 |
| Cum'land P. L. | 188,201.35 | 197,918.75 |
| N. Y. Transit | 30,538.20 | 32,746.64 |
| Tidewater P. L. | 59,187.70 | ..... |
| Pure Oil | 340,830.38 | 290,321.77 |
| Paragon Dev. | 13,427.85 | 13,725.53 |
| Stoll Oil Ref. | 4,827.82 | 5,077.57 |
| Bradford Tran. | 289,323.57 | 414,513.56 |
| Total | 2,019,446.57 | 2,358,896.43 |
| Daily average | 67,314.88 | 76,093.43 |

Note—Indian Refining Co. also reported other receipts of 467,659.27 bbls. Paragon Refining Co. has other receipts of 189,418.26 bbls. Paragon Development had other receipts of 565.74 bbls.

### Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky for September and October:

| | Sept., 1929 | Oct., 1929 |
|---|---|---|
| Nat. Transit | 502,982.89 | 601,799.57 |
| S. W. Pa. P. L. | 354,433.46 | 332,869.58 |
| Eureka P. L. | 230,056.08 | 228,566.66 |
| Buckeye P. L. (Macksb'g.) | 234,242.65 | 196,645.46 |
| Buckeye P. L. (Cleve.) | 2,182.54 | 2,185.51 |
| Buckeye P. L. (Lima, etc.) | 1,632,230.66 | 1,676,756.01 |
| Indiana P. L. | 1,379,905.31 | 1,435,999.12 |
| Cum'land P. L. | 208,727.10 | 178,996.97 |
| Southern P. L. | 92,625.44 | 64,066.81 |
| N. Y. Transit | 279,908.63 | 292,940.39 |
| Northern P. L. | 168,857.71 | 168,667.97 |
| Tidewater P. L. | 211,086.95 | 280,269.87 |
| Pure Oil | 248,121.86 | 290,992.65 |
| Paragon Ref. | 170,090.96 | 175,750.89 |
| Paragon Dev. | 12,326.20 | 15,869.35 |
| Bradford Tran. | 308,652.35 | ..... |
| Total | 6,036,420.79 | 5,932,376.81 |
| Daily average | 201,214.02 | 191,366.99 |

Indian Refining Co. reported other deliveries of 426,148.84 bbls.

### Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of September and October:

| | Sept., 1929 | Oct., 1929 |
|---|---|---|
| Nat. Transit | 654,825.92 | 719,388.96 |
| S. W. Pa. P. L. | 556,527.00 | 498,919.11 |
| Eureka P. L. | 1,415,789.95 | 1,398,117.80 |
| Buckeye P. L. (Macksb'g.) | 394,708.80 | 400,582.44 |
| Buckeye P. L. (Cleve.) | 56,853.66 | 48,885.71 |
| Buckeye P. L. (Lima, etc.) | 2,860,912.26 | 2,783,005.84 |
| Indiana P. L. | 575,104.02 | 747,719.04 |
| Cum'land P. L. | 539,326.53 | 562,259.60 |
| Southern P. L. | 387,726.89 | 339,742.96 |
| N. Y. Transit | 167,745.27 | 142,410.37 |
| Northern P. L. | 365,819.17 | 328,077.84 |
| Tidewater P. L. | 955,021.33 | 909,010.27 |
| Pure Oil | 15,318.69 | 20,118.60 |
| Paragon Ref. | 10,799.07 | 24,163.27 |
| Indian Ref. | 141,337.05 | 182,679.26 |
| Paragon Dev. | 6,461.28 | 4,903.36 |
| Tuscarora | 265,097.04 | 265,678.11 |
| Bradford Trans. | 73,688.01 | 65,438.84 |
| Total | 9,443,066.95 | 9,441,101.38 |
| Increase | 2,424.36 | |
| Decrease | | 1,965.57 |

### Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of September and October showing the gross stocks of the above fields:

| | Sept., 1929 | Oct., 1929 |
|---|---|---|
| Penn'a. | 3,341,064.05 | 3,372,038.77 |
| Lima | 674,215.23 | 563,216.93 |
| Kentucky | 713,552.53 | 711,964.81 |
| Mid-Continent | 4,519,635.67 | 4,494,311.77 |
| Illinois | 294,569.47 | 299,569.70 |
| Total | 9,443,066.95 | 9,441,101.38 |

### Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

| | 1926 | 1927 | 1928 | 1929 |
|---|---|---|---|---|
| January | 55,630 | 56,209 | 52,904 | 51,749 |
| February | 60,394 | 61,298 | 57,002 | 51,833 |
| March | 61,644 | 63,247 | 57,485 | 54,252 |
| April | 63,019 | 60,927 | 56,813 | 58,444 |
| May | 60,580 | 60,284 | 62,067 | 59,902 |
| June | 61,121 | 62,757 | 58,230 | 58,833 |
| July | 63,206 | 58,674 | 57,144 | 56,087 |
| August | 61,815 | 60,870 | 57,745 | 56,687 |
| September | 64,639 | 60,285 | 53,487 | 67,315 |
| October | 161,132 | 147,080 | 58,100 | 76,093 |
| November | 67,774 | 57,275 | 53,565 | ..... |
| December | 58,755 | 53,089 | 52,025 | ..... |

### Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

| | 1926 | 1927 | 1928 | 1929 |
|---|---|---|---|---|
| January | 156,056 | 141,227 | 146,465 | 165,721 |
| February | 159,488 | 138,534 | 167,368 | 159,387 |
| March | 150,239 | 133,777 | 158,883 | 161,474 |
| April | 152,374 | 140,227 | 172,935 | 169,737 |
| May | 160,998 | 144,594 | 180,559 | 184,281 |
| June | 160,267 | 149,772 | 188,024 | 185,404 |
| July | 160,045 | 151,850 | 189,470 | 194,763 |
| August | 151,929 | 188,653 | 192,853 | 184,946 |
| September | 158,915 | 144,213 | 194,138 | 201,214 |
| October | 161,132 | 147,036 | 176,000 | 191,367 |
| November | 172,608 | 150,975 | 176,898 | ..... |
| December | 136,428 | 144,504 | 173,572 | ..... |

### Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

| | 1927 | 1928 | 1929 |
|---|---|---|---|
| January | 9,718,008 | 12,276,710 | 7,596,564 |
| February | 10,119,162 | 12,180,419 | 8,738,835 |
| March | 10,794,044 | 12,239,725 | 9,002,058 |
| April | 11,112,295 | 11,740,125 | 8,978,173 |
| May | 11,359,331 | 11,602,468 | 8,903,560 |
| June | 11,493,673 | 11,287,678 | 8,921,276 |
| July | 11,458,128 | 10,819,331 | 9,311,595 |
| August | 11,989,115 | 10,236,743 | 9,440,643 |
| September | 12,212,716 | 9,660,910 | 9,442,067 |
| October | 12,047,661 | 9,229,709 | 9,441,101 |
| November | 11,939,740 | 8,366,553 | ..... |
| December | 12,340,297 | 7,539,555 | ..... |

### Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

| 1928— | Runs | Shipments | Stocks |
|---|---|---|---|
| October | 1,289.93 | 538.89 | 17,551.93 |
| November | 2,663.53 | 788.47 | 19,426.99 |
| December | 3,053.60 | 3,167.53 | 19,426.99 |
| 1929— | | | |
| January | 2,099.90 | ..... | 19,313.06 |
| February | 2,463.47 | 6,873.30 | 17,009.23 |
| March | 3,330.32 | 3,595.01 | 16,745.04 |
| April | 4,864.07 | 4,243.59 | 17,365.52 |
| May | 2,688.59 | 2,455.54 | 17,598.57 |
| July | 2,947.62 | 3,329.35 | 4,503.48 |
| August | 2,742.73 | 2,889.47 | 4,356.74 |
| September | 2,925.71 | 2,897.34 | 4,385.11 |
| October | 3,083.59 | 1,754.94 | 5,713.76 |

### The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

| | |
|---|---|
| Gross stocks, November 1 | 2,416,864.80 |
| Runs from wells | 593,307.69 |
| Other receipts | 360,730.14 |
| Regular deliveries | 482,983.75 |
| Other deliveries | 346,468.23 |

The amount of Illinois oil run by the Tide Water Pipe Co. in October was 28,995.14 bbls. Deliveries were 75,574.93 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

| 1928— | Runs | Deliveries |
|---|---|---|
| November | 576,332.88 | 702,589.93 |
| December | 584,633.00 | 491,517.26 |
| 1929— | | |
| January | 570,727.38 | 545,084.66 |
| February | 517,330.17 | 503,337.70 |
| March | 728,319.67 | 586,049.60 |
| April | 515,374.27 | 654,297.96 |
| May | 608,981.60 | 673,812.33 |
| June | 568,454.70 | 813,845.97 |
| July | 611,106.79 | 823,159.44 |
| August | 625,351.99 | 746,425.06 |
| September | 582,457.66 | 669,947.72 |
| October | 622,302.83 | 558,558.68 |

Tide Water Pipe Co., Ltd., also delivered in September 268,016.93 bbls. Oklahoma oil.

## AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

| Average bbls. per day— | ATLANTIC PORTS: Baltimore | Boston | New York | Philadelphia | Others | Total | GULF COAST PORTS: Galveston | New Orleans Baton Rouge | Port Arthur Sabine Pass | Tampa | Total | Total all ports |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| February | 14,214 | ..... | 38,750 | 17,250 | 11,607 | 81,821 | ..... | ..... | ..... | ..... | 3,750 | 85,571 |
| March | 19,903 | 968 | 31,258 | 15,681 | 7,355 | 75,065 | ..... | ..... | ..... | ..... | ..... | 75,065 |
| April | 16,667 | ..... | 32,333 | 12,333 | 3,334 | 64,667 | ..... | ..... | ..... | ..... | 7,333 | 65,200 |
| May | 16,226 | 2,416 | 31,226 | 10,806 | 2,129 | 62,903 | ..... | ..... | ..... | ..... | ..... | 62,903 |
| June | 14,366 | 3,167 | 32,100 | 10,800 | 6,100 | 57,533 | ..... | ..... | ..... | ..... | ..... | 57,533 |
| July | 15,387 | 4,806 | 34,290 | 19,355 | 2,452 | 76,333 | ..... | ..... | ..... | ..... | 4,161 | 80,484 |
| August | 20,839 | 3,129 | 35,226 | 16,903 | 5,548 | 83,194 | ..... | ..... | ..... | ..... | 12,161 | 95,355 |
| September | 19,433 | ..... | 31,834 | 11,900 | 6,300 | 69,367 | ..... | ..... | ..... | ..... | 4,800 | 74,167 |
| October | 9,065 | 4,677 | 42,065 | 12,000 | 9,677 | 77,484 | ..... | ..... | ..... | ..... | 4,097 | 81,581 |

## AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

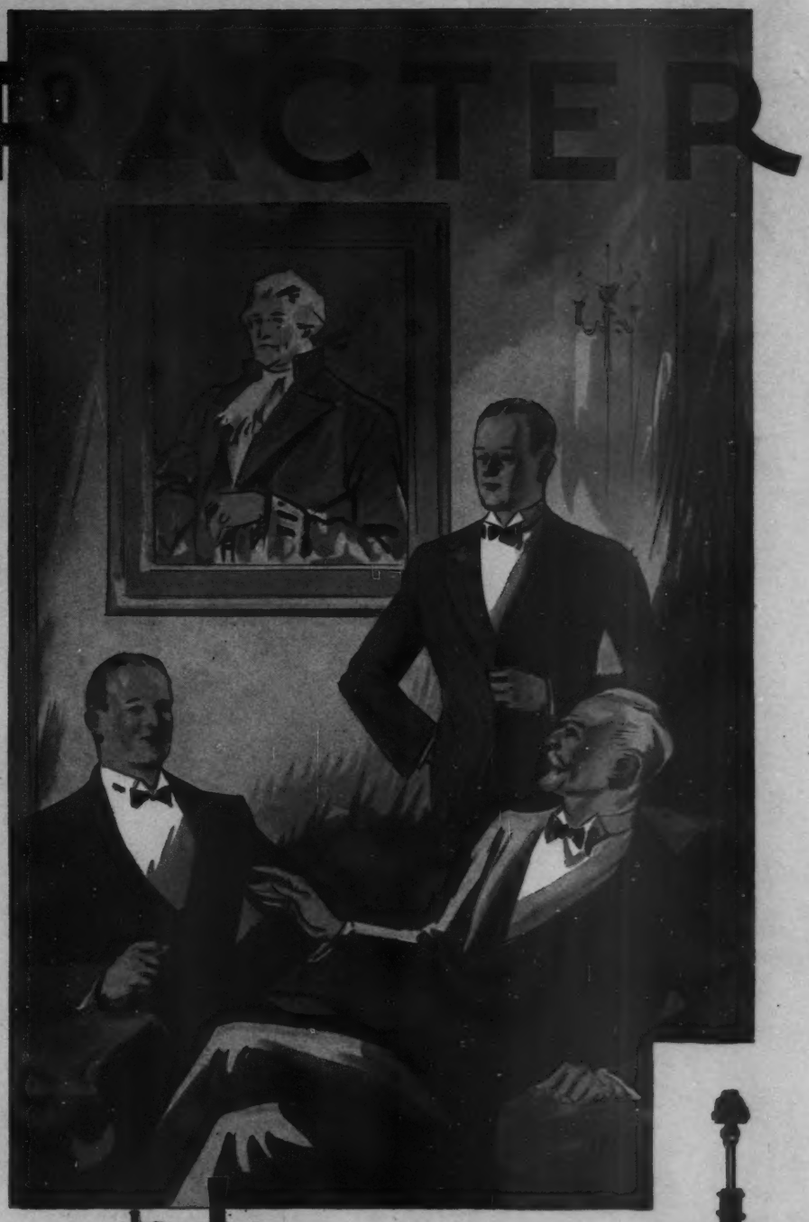
| Average bbls. per day— | ATLANTIC PORTS: Baltimore | Boston | New York | Philadelphia | Others | Total | GULF COAST PORTS: Galveston | New Orleans Baton Rouge | Port Arthur Sabine Pass | Tampa | Total | Total all ports |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| February | 13,750 | 15,071 | 135,179 | 32,750 | 17,893 | 214,643 | ..... | 34,357 | 321 | 143 | 35,321 | 249,964 |
| March | 18,548 | 26,064 | 145,516 | 35,162 | 32,162 | 257,452 | ..... | 42,581 | 3,323 | ..... | 44,903 | 302,355 |
| April | 19,733 | 18,367 | 137,333 | 50,267 | 22,567 | 248,267 | 6,867 | 25,066 | 10,367 | 1,500 | 43,800 | 291,967 |
| May | 29,806 | 19,258 | 138,000 | 49,936 | 12,322 | 259,322 | 4,677 | 26,323 | 3,000 | 1,323 | 37,323 | 296,645 |
| June | 21,433 | 8,667 | 134,600 | 42,967 | 15,300 | 225,967 | 5,600 | 22,633 | 11,800 | 2,033 | 42,066 | 281,033 |
| July | 40,097 | 15,129 | 111,677 | 43,420 | 31,516 | 241,839 | 4,774 | 12,097 | 9,516 | 161 | 26,548 | 268,387 |
| August | 33,387 | 14,355 | 162,644 | 30,936 | 20,355 | 261,677 | 4,226 | 12,742 | ..... | 1,484 | 18,452 | 280,129 |
| September | 33,967 | 9,000 | 126,633 | 54,300 | 32,900 | 256,800 | 6,900 | 32,900 | 5,367 | 1,333 | 36,500 | 302,300 |
| October | 39,936 | 10,519 | 137,096 | 38,160 | 38,644 | 264,355 | 6,613 | 13,388 | 11,064 | 4,419 | 35,484 | 299,839 |

## GROSS PRODUCTION IN THE UNITED STATES FOR 12 MONTHS (REVISED)

(In Barrels of 42 gallons)

| 1928-29 | | California | Oklahoma | Texas | Kansas | Arkansas | Louisiana | Rocky Mts. | Eastern | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| October: | Month | 19,430,992 | 23,421,071 | 32,176,852 | 5,058,460 | 2,652,484 | 1,826,221 | 2,571,822 | 3,612,000 | 78,769,903 |
| | Daily average | 626,806 | 755,841 | 715,076 | 98,560 | 85,564 | 59,233 | 82,962 | 116,516 | 2,540,964 |
| November: | Month | 19,907,536 | 22,978,480 | 30,791,788 | 4,977,600 | 2,476,080 | 1,801,914 | 2,383,870 | 3,348,000 | 75,770,668 |
| | Daily average | 663,584 | 765,966 | 693,059 | 99,260 | 82,536 | 60,064 | 79,629 | 111,600 | 2,526,689 |
| December: | Month | 21,574,703 | 22,435,732 | 32,180,102 | 4,958,400 | 2,521,571 | 1,846,841 | 2,385,040 | 3,581,000 | 79,407,379 |
| | Daily average | 695,958 | 723,410 | 715,487 | 96,400 | 81,341 | 59,576 | 73,840 | 115,516 | 2,561,528 |
| January: | Month | 23,385,939 | 22,575,374 | 32,412,226 | 3,861,641 | 2,453,526 | 1,807,887 | 2,076,070 | 3,433,000 | 83,013,163 |
| | Daily average | 754,385 | 728,254 | 725,233 | 92,311 | 79,146 | 58,318 | 66,970 | 110,936 | 2,645,554 |
| February: | Month | 23,300,707 | 20,464,164 | 30,816,309 | 3,557,963 | 2,154,194 | 1,569,930 | 1,965,656 | 3,113,000 | 74,941,223 |
| | Daily average | 796,454 | 730,863 | 743,484 | 91,356 | 76,936 | 56,068 | 70,202 | 111,184 | 2,676,472 |
| March: | Month | 24,224,739 | 20,338,262 | 34,358,592 | 3,951,076 | 2,303,724 | 1,756,153 | 2,195,823 | 3,586,000 | 82,314,359 |
| | Daily average | 784,669 | 672,202 | 785,761 | 95,196 | 74,314 | 56,650 | 70,833 | 115,677 | 2,655,302 |
| April: | Month | 23,295,060 | 20,235,290 | 33,492,097 | 3,112,740 | 2,188,680 | 1,703,479 | 2,085,030 | 3,524,000 | 79,636,376 |
| | Daily average | 776,502 | 674,513 | 783,102 | 103,758 | 72,956 | 56,750 | 69,501 | 117,467 | 2,654,546 |
| May: | Month | 24,055,351 | 21,345,453 | 34,439,101 | 3,665,099 | 2,300,158 | 1,713,261 | 2,252,522 | 3,879,000 | 83,617,945 |
| | Daily average | 775,915 | 688,563 | 759,985 | 118,229 | 71,618 | 55,267 | 73,662 | 125,129 | 2,697,353 |
| June: | Month | 24,624,627 | 20,561,113 | 34,692,029 | 3,636,150 | 2,112,270 | 1,699,581 | 2,180,752 | 3,887,000 | 83,399,521 |
| | Daily average | 820,821 | 685,371 | 823,267 | 121,205 | 70,327 | 56,653 | 72,692 | 129,567 | 2,779,984 |
| July: | Month | 26,796,437 | 23,371,935 | 36,949,989 | 3,867,157 | 2,127,047 | 1,716,488 | 2,340,836 | 4,429,200 | 90,859,736 |
| | Daily average | 864,407 | 731,675 | 849,997 | 124,747 | 68,937 | 55,370 | 76,156 | 142,200 | 2,924,489 |
| August: | Month | 27,322,353 | 22,439,492 | 37,490,489 | 3,816,655 | 2,036,982 | 1,764,973 | 2,473,014 | 4,340,000 | 91,638,961 |
| | Daily average | 878,495 | 723,532 | 886,787 | 123,115 | 67,293 | 56,934 | 79,388 | 140,000 | 2,956,092 |
| September: | Month | 26,104,264 | 21,402,290 | 35,927,102 | 3,750,690 | 1,959,730 | 1,713,250 | 2,346,480 | 4,200,000 | 87,493,826 |
| | Daily average | 870,142 | 713,413 | 866,236 | 126,033 | 65,324 | 57,275 | 78,234 | 140,000 | 2,916,647 |
| | Total 12 months | 282,021,873 | 260,150,435 | 386,362,527 | 39,272,736 | 27,265,537 | 20,922,973 | 27,190,917 | 44,948,000 | 988,667,998 |

# CHARACTER runs in the family



Because of their famous forbears, much is expected of the present generation of Gaso Oil Industry Pumps. But staunch character runs in the Gaso family. From the smallest to the largest, these pumps can be depended upon to acquit themselves well in humdrum daily service or in times of extraordinary demands.

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Tulsa, Oklahoma

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Gaso Piston Power Pump (Jerker Pattern) Figure 301

Gaso Fig. 1508 All Timken Bearing Duplex Power Pump.

Gaso Pumping Unit with Fig. 710 Enclosed Power Pump, V-rope drive from Buda 85-H.P. Gas or Gasoline Engine.

Gaso Walking Beam Pump Fig. 604, for Gas or Vacuum.

GASO PUMPS

for every oil industry need

Photograph shows hook-up on T. B. Slick's Glidden No. 2, Oklahoma City field. Approximate production, 125 barrels per hour. Total depth 6558 feet. Well was drilled by J. E. Mabee, drilling contractor. 6⅝" A.P.I. Casing was set to 6505 feet on Sept. 28th—64 days after starting up under the surface.

HOOK-UP CONSISTS OF:

2—6⅝" A.P.I. 5000 Lb. Test Hughes Drilling Valves.

2—7" A.P.I. 3000 Lb. Test Drilling Valves. (Used as manifold valves.)

1—6⅝"x7" male drilling thru cross.

**Design, material, workmanship and tests combine to make Hughes Valves and Fittings supreme in performance under all working conditions.**

**The castings are fine-grained, tough and wear resisting.**

**All parts are interchangeable.**

**All cast parts, including the handwheel are heat treated chrome-nickel steel.**

**When completed every valve and fitting is tested with kerosene at double the rated working pressure. Additional tests further guarantee positive closure under varying working conditions.**

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